THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON *Telephones*—GERRARD 4314 & 4315 *Offices*—423, Strand, London, W.C. 2

No. V. OF VOL. II., 1922. **No. 5161. Vol. CCIII.** LONDON, SATURDAY, JULY 29, 1922. Founded 1823. Registered as a Newspaper. Published Weekly. **Pp. 104—Price 1s.** Annual Subscription Inland £2 2s. Abroad £2 10s.

STERILITY IN WOMEN.
By ARTHUR E. GILES, M.D., B.Sc., Ch.B., F.R.C.S., M.R.C.P., Senior Surgeon to the Chelsea Hospital for Women, Gynæcologist to the Prince of Wales's General Hospital, Tottenham.
Demy 8vo. Cloth. 243 pages, Illustrated. Price 10s. net.
"For the General Practitioner this is an ideal book, full of information."—MEDICAL WORLD.
"The best that has been written on the subject."—BRIT. MED. JR.
Henry Frowde, Hodder & Stoughton, 1, Bedford-st., London, W.C.2.

BY THE SAME AUTHOR.
DISEASES OF WOMEN (with Sir JOHN BLAND-SUTTON). 7th Ed. William Heinemann.
GYNÆCOLOGICAL DIAGNOSIS } Baillière,
AFTER RESULTS OF ABDOMINAL OPERATIONS } Tindall & Cox

FROM A PROFESSOR AND A JOURNAL.
TWO OPINIONS OF POULTON'S NEW EDITION.
TAYLOR'S PRACTICE OF MEDICINE.
12th Edition. 30s. net. Postage 1s.
PROFESSOR'S LETTER, 1st July:—"*I always recommend it to students ... one of the best text-books I know.*"
B.M.J., 22nd July:—"*Wisely and extremely thoroughly edited, remarkably successful and complete ... up to date ... admirably maintains the character of this successful work.*"
London: J. & A. Churchill, 7, Great Marlborough-street, W.1.

ASHBY & WRIGHT'S
DISEASES OF CHILDREN
MEDICAL AND SURGICAL.
Revised by HUGH T. ASHBY, M.D., M.R.C.P. (Lond.), and CHARLES ROBERTS, M.B., B.S. (Lond.), F.R.C.S.
SIXTH EDITION, Thoroughly Revised and Rewritten.
Demy 8vo. Cloth. 800 pages, with 202 Illustrations and Coloured Frontispiece. Price £2 2s. net.
Henry Frowde, Hodder & Stoughton,
The *Lancet* Building, 1, Bedford-street, Strand, London, W.C.

By A. H. TUBBY, C.B., C.M.G., M.S.
Demy 8vo. 15s. net. 279 pages. 15 Illustrations.
A CONSULTING SURGEON IN THE NEAR EAST.
London: Christophers, 22, Berners-street, W.C.1.

Fourth Edition. Crown 8vo. Pp. viii. + 244. With 92 Illustrations and Folding Plate. Price 7s. 6d. net.
ERRORS OF ACCOMMODATION AND REFRACTION OF THE EYE.
By ERNEST CLARKE, M.D., F.R.C.S. Eng., Consulting Surgeon, Central London Ophthalmic Hospital, and Consulting Ophthalmic Surgeon, Miller General Hospital.
"One of the best if not THE best book on the subject in this or any other language."—EDINBURGH MEDICAL JOURNAL.
Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden, W.C.2.

Crown 8vo. Paper covers, 6d. net; post free, 7d.
INTESTINAL DISINFECTION.
WITH A NOTE ON ITS PRACTICAL ATTAINMENT.
By CAPT. J. T. AINSLIE WALKER, R.A.M.C.(T.F.), F.I.C., F.C.S.
The Universal Medical Periodicals, Ltd.,
36-38, Whitefriars-street, E.C. 4.

Crown 8vo. Paper covers, 1s. net; post free, 1s. 1d.
THE RIDEAL-WALKER TEST.
APPROVED TECHNIQUE.
By SAMUEL RIDEAL, D.Sc., and CAPT. J. T. AINSLIE WALKER, R.A.M.C.(T.F.), F.I.C., F.C.S.
London: H. K. Lewis & Co. Ltd., 136, Gower-street, W.C.1.

HYPNOTISM AND TREATMENT BY SUGGESTION. [5s. net.
3rd Ed.]
By ALBERT E. DAVIS, F.R.C.S. Ed., L.R.C.P., Hon. Physician to the Liverpool Psycho-Therapeutic Clinic.
"A fascinating book."—THE DAILY NEWS.
Simpkin, Marshall & Co., Ltd., London.

Now Ready. Pp. xi. + 269. With 3 Charts. 5s. net.
ON ALCOHOLISM: Its Clinical Aspects and Treatment.
By FRANCIS HARE, M.D., Medical Superintendent of the NORWOOD SANATORIUM, Beckenham.
"Marked by candour, common sense, and moderation ..... likely to become the standard text-book."—BRITISH MEDICAL JOURNAL.
London: J. & A. Churchill, 7, Great Marlborough-street.

A STUDY OF INTESTINAL STASIS.
By J. C. WATT, *M.C.*, M.B., Ch.B., West African Medical Staff.
Demy 8vo, paper covers, with a full page X-ray Plate. 1s. net; postage, inland, 3d.
John Bale, Sons & Danielsson, Ltd., 83-91, Great Tichfield St., W.1.

By LESLIE THORNE THORNE, M.D., B.S., &c.
NAUHEIM TREATMENT in ENGLAND of DISEASES OF THE HEART AND CIRCULATION.
Fifth Ed. Enlarged and re-written, much new matter. Price 5s. net.
Pp. vi.+160. With 27 Photographs of RESISTANCE-Exercises and 65 other Illustrations. Polygraphs, &c.
"It is the best and most practical work on the subject."
—WEST LONDON MEDICAL JOURNAL.
Baillière, Tindall & Cox, 8, Henrietta-st., Covent Garden, London, W.C.

JUST PUBLISHED.
CLINICAL & OPERATIVE GYNÆCOLOGY
By J. M. MUNRO KERR,
Professor of Obstetrics and Gynæcology, Glasgow University (Muirhead Chair); Gynæcological Surgeon, Royal Infirmary, Glasgow; Honorary Fellow American Gynæcological Society, &c.
Crown 4to. Cloth. 848 pages with 450 illustrations in the text, and 12 coloured plates. Price £2 10s. net
Henry Frowde, Hodder & Stoughton,
The Lancet Building, 1, Bedford-street, Strand, London, W.C.2.

Second Edition
DISEASES OF THE CHEST
and the Principles of Physical Diagnosis
Beautifully Illustrated

"The authors have endeavoured to teach as far as possible by means of illustrations, many of them photographs of frozen sections from the cadaver previously hardened in formalin. Indeed, the illustrations are one of the most striking features of the book, and form a most valuable and instructive series, well chosen, and well reproduced by the printer. The book may be warmly commended to the senior medical student, and it should be in the hands of all his medical instructors.—BRITISH MEDICAL JOURNAL.

CONTAINS A MOST IMPORTANT CHAPTER ON INFLUENZA

Octavo of 782 pages, with 413 illustrations, 5 in colours. By G. W. NORRIS, M.D., and H. R. M. LANDIS, M.D., Assistant Professors of Medicine, University of Pennsylvania. Cloth, 45s. net.

W. B. Saunders Company, Ltd., 9, Henrietta Street, London, W.C.2.

THE SAFEST AND MOST EFFICIENT METHOD FOR THE TREATMENT OF

PAINLESS. COMPLETELY ABSORBED. **SYPHILIS** DEFINITE CLINICAL RESULTS.

MODERN PHARMACALS, Ltd., 48, Mortimer St., LONDON, W. 1.

Telephone: MUSEUM 564. Telegrams: "PHARMACALS, WESDO, LONDON."

TABLETS

SERUM OLIVIERO

"EQUISERINE"

HORSE SERUM.
HEPATIC EXTRACT.
IRON.

SEROTHERAPEUTIC TREATMENT OF ANÆMIAS

of particular value in

CONSUMPTION, DEBILITY, CONVALESCENCE.

FREE.

A POCKET HÆMOGLOBINOMETER

with which the physician can readily test the hæmoglobin percentage before, during, and after treatment.

SENT ON RECEIPT OF CARD.

Another form of
OLIVIERO'S NORMAL HORSE SERUM
GLUTENISED CAPSULES
to increase the
coagulating power of the blood
in
HÆMOPTYSIS, HÆMORRHAGES, INCONTROLLABLE MENSTRUATION, etc.

MODERN PHARMACALS, LTD., 48, Mortimer Street, London, W.1.

THE LANCET.

No. 5161. LONDON, SATURDAY, JULY 29, 1922. Vol. CCIII.

CONTENTS.

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

AN ADDRESS [abridged] on Brain Surgery. Being the Presidential Address delivered at the Annual Meeting of the B.M.A. in Glasgow on July 25th. By Sir WILLIAM MACEWEN, C.B., LL.D., D.Sc., F.R.C.S., F.R.S., Regius Professor of Surgery, University of Glasgow 213

AN ADDRESS on the Relative Rôles of Compulsion and Education in Public Health Work. By Sir ARTHUR NEWSHOLME, K.C.B., M.D., F.R.C.P. ... 219

ORIGINAL ARTICLES.

Restriction of Birth in Relation to National Weal. By JOHN BROWNLEE, M.D., D.Sc. (National Institute for Medical Research.) 223

Night Sweats: Their Significance and Prevention. By MARCUS PATERSON, M.D., M.R.C.S. .. 225

The Calcium and Inorganic Phosphorus Content of the Maternal Blood During Pregnancy and Lactation. By O. L. V. DE WESSELOW, M.B., F.R.C.P. 227

Primary Malignant Growth of the Liver in Infants: With Report of a Recent Case. By C. B. DANSIE, M.R.C.S. 228

A Perforated Appendix Removed at Sea under Exceptional Conditions. By Surg.-Cmdr. HORACE E. R. STEPHENS, O.B.E., F.R.C.S., R.N. 229

Preventive Aspects of Endemics in Modern Times. By Prof. W. J. R. SIMPSON, C.M.G., M.D., F.R.C.P. 258

MEDICAL SOCIETIES.

Medico-Psychological Association: Annual Meeting at Edinburgh: The Relations of Endocrinology to Mental Disease .. 230

REVIEWS AND NOTICES OF BOOKS.

Taylor's Practice of Medicine. Twelfth edition. By E. P. Poulton, M.D., F.R.C.P., and others. ... 232

Suggestion and Mental Analysis. By William Brown, M.D., D.Sc. 232

Forensic Medicine and Toxicology. Sixth edition. By the late J. Dixon Mann, M.D., F.R.C.P. Edited by William A. Brend, M.D., B.Sc. 233

Spadacrene Anglica, or the English Spa Fountain. By Edmund Deane, M.D. 233

Précis de Diagnostic Chimique Microscopique et Parasitologique. Fourth edition. By J. Guiart and L. Grimbert 234

Epilepsy, Hysteria, and Neurasthenia. By Isaac G. Briggs, A.R.S.I. 234

Journal of Pathology and Bacteriology. 234

LEADING ARTICLES.

THE MEETING OF THE BRITISH MEDICAL ASSOCIATION 235

CEREBELLAR FUNCTION ... 235

AN EXPERIMENTAL STATION FOR MEDICINAL PLANTS 236

HEALTH CONDITIONS IN WEST AFRICA 237

ANNOTATIONS.

Departmental Health Reports 237

The Nubile Age in France and Elsewhere 237

Studies in Experimental Silicosis 238

The Price of Blue-Books .. 238

Factory Hygiene in 1921 .. 239

Tuberculosis in Russia 240

Gaseous Exchanges in Rowing 240

The Publication of Evidence 241

Beit Memorial Fellowships for Medical Research .. 241

BRITISH MEDICAL ASSOCIATION.

The Glasgow Meeting: The Annual Representative Meeting 242

INDEX NOTICE

THE LANCET, Vol. I., 1922 . 241

SPECIAL ARTICLES.

International Hygienic Agreement: Public Health Questions at the League of Nations Council: Report of the Health Committee 244

Third International Congress of the History of Medicine 245

The Work of the Scottish Board of Health in 1921: Amalgamation of Control of Public Health Services 246

Rumania: "Nervousness" in School-children 247

THE SERVICES.

Royal Naval Medical Service.—Royal Army Medical Corps.—Royal Air Force.—Indian Medical Service 248

PUBLIC HEALTH SERVICES.

L.C.C.: Dental Inspection of School-children.—Residential Treatment of Tuberculosis 248

Reports of M.O.H.'s 248

School Medical Service 249

CORRESPONDENCE.

The Cure of Commencing Valvular Disease (Dr. Richard Caton) 250

The Cardiac Child (Dr. G. Arbour Stephens) 251

The Intestinal Flora (Dr. W. R. Logan) 251

Tennis Elbow: Disclaimers (Mr. Frank Romer and Dr. T. N. Darling) 251

Christian Names on Prescriptions (Mr. G. A. Mallinson) 252

The Malaria Mosquito (Maj.-Gen. Sir P. Hehir) 260

Endolytic Tubes of Microscopic Stain (Dr. J. C. Matthews) 260

MEDICAL NEWS.

University of Cambridge .. 252

University of London 252

Roy. Coll. Phys., Edin., &c. 252

Roy. Coll. Surg., Edin.: Fellowship Exam. 253

Roy. Coll. Phys., Lond. 253

University of Manchester .. 253

Ministry of Pensions 231

London Resolutions on a Staff Fund 244

Royal Medical Benevolent Fund 252

National Conference of Local Voluntary Hospital Committees 253

Donations and Bequests .. 253

Typhus at Raasay 253

Dental Board of the United Kingdom 253

Society of M.O.H.'s: School Medical Group .. 254

The late Dr. E. L. Prowde . 254

The Sale of Unsound Food 254

Association of Poor-law Medical Officers 254

The Universities Commission 254

University of Paris: Post-graduate Course in Diseases of the Digestive Tract 254

Medical Practice in the West of Ireland 254

A Small-pox Hospital as Convalescent Home 254

PARLIAMENTARY INTELLIGENCE.

House of Commons: Milk and Dairies Bill.—Drugs and Medicines for Panel Patients.—Disabled Men's Eligibility for Pension.—Reduction in Health Expenditure in Scotland.—Allegations against a Panel Practitioner.—Clearing Slum Areas in Scotland.—Medical Research.—Houses Unfit for Habitation.—Importation of Cocaine.—Skimmed Milk as Infants Food.—Outdoor and Indoor Relief Statistics.—Institutional Treatment of Certifiable Ex-Service Men 255

NOTES, SHORT COMMENTS, &c.

Indian Official Medical Reports. II.—Sanitation in the United Provinces 259

Jenner Relics 260

Enteric Fever Following Cockles 260

Appointments 257

Vacancies 257

Births, Marriages, Deaths .. 257

ZUMBUSCH'S ATLAS OF SYPHILIS.

With 63 illustrations taken direct from Nature by Colour Photography, and one single-colour-illustration. Med. 4to. Cloth, **30s.** net. Postage inland, 1s. 6d. net. JUST PUBLISHED.

DE ARTE PHISICALI ET DE CIRURGIA OF MASTER JOHN ARDERNE, SURGEON OF NEWARK, DATED 1412.

Translated by **SIR D'ARCY POWER**, K.B.E., M.B.Oxon., F.R.C.S. From a Transcript made by **ERIC MILLAR**, M.A.Oxon., from the replica of the Stockholm MS. in the Wellcome Historical Medical Museum. Cr. 4to. Pp. xii. + 60, with coloured Frontispiece and 13 plates. **10s. 6d.** net. Postage inland, 1s. JUST PUBLISHED.

JOHN BALE, SONS & DANIELSSON, LTD., 83-91, Great Titchfield Street, W. 1.

Entirely New Work. ***For the Busy Practitioner.***

THE OPHTHALMOLOGY OF GENERAL PRACTICE

BY

MALCOLM L. HEPBURN, M.D. Lond., F.R.C.S. Eng.

Surgeon, Royal London Ophthalmic Hospital; Ophthalmic Surgeon Royal Free Hospital, Lecturer in Ophthalmology, London School of Medicine for Women.

This book has been written in order to help the general practitioner to distinguish between ophthalmic cases which he can treat himself and those which must be referred to a specialist, and in both groups of cases to give him the practical guidance which he needs.

There are 40 illustrations in colour, most of them elucidating the conditions of the external eye that most commonly come for treatment.

"Few practitioners can afford to be without this work."—BRITISH MEDICAL JOURNAL.

"Should make a wide appeal."—LANCET.

184 pp., Demy 8vo. With 40 Colour and 9 Half-tone Illustrations. *12s. 6d.* net.

The House of Cassell
La Belle Sauvage, London, E.C.4

SECOND EDITION. Fully Revised and Enlarged. Largely Re-written and entirely Re-set. With 296 Illustrations, plain and coloured. Super Royal 8vo, 454 pp. **30/-** *net. Postage 1s.*

ON MODERN METHODS OF TREATING FRACTURES.

By ERNEST W. HEY GROVES, B.S., M.S., M.D., B.Sc. Lond., F.R.C.S. Eng.

Lecturer in Surgery, University of Bristol; Surgeon, Bristol General Hospital; Consulting Surgeon, Cossham Hospital, Kingswood; Examiner in Surgery, University of London; Surgical Director, Pensions Hospital, Bath.

"The author has given the surgical world a monograph of rare judgment and maturity.....will serve as a model for sections on fractures in future text-books of surgery."—*Lancet.*

BY THE SAME AUTHOR.

FIFTH EDITION. Revised and Enlarged. With numerous Diagrams. Crown 8vo, 628 pp. **17/6** *net. Postage 9d.*

A SYNOPSIS OF SURGERY: For Students and Practitioners.

"Is so well known that it needs no introduction when, as a new edition, it makes its bow for the fifth time. This alone is sufficient proof that there is a need for a book of the kind.....this is just about as good as it is possible to have. We believe its popularity to be deserved."—*British Medical Journal.*

EIGHTH EDITION. Fully Revised. 362 Illustrations and 11 Plates. **21/-** *net. Postage 1s.*

PYE'S SURGICAL HANDICRAFT:

A MANUAL OF SURGICAL MANIPULATIONS, MINOR SURGERY, ETC.

Edited and largely re-written by **W. H. CLAYTON-GREENE**, C.B.E., B.A., M.B., B.Ch.Camb., F.R.C.S. *Surgeon to St. Mary's Hospital; Lecturer on Surgery in the Medical School, &c.* WITH SPECIAL CHAPTERS BY VARIOUS AUTHORS.

"A complete manual of the technique of minor surgery under modern conditions."—*Brit. Med. Jour.*

London: SIMPKIN & CO. Ltd. **Bristol: JOHN WRIGHT & SONS Ltd.**

STERILITY IN WOMEN

A BOOK FOR THE WOMAN OF TO-DAY.

A consensus of qualified opinion on a cause of Pelvic Disease.

1/3 POST FREE. H. Holden, South View, Rusthall, Kent.

STAMMERING, SPEECH DEFECTS, VOICE TRAINING.

BEHNKE METHOD. Est. 1882.

Carried on by Miss BEHNKE, at 39, Earl's Court-square, S.W.5.

Pupils received into residence, summer holidays, at Miss Behnke's house in the country. Early application necessary.

"Pre-eminent success in the education and treatment of stammering and other speech defects."—*The Times.*

"Thoroughly physiological principles."—*The Lancet.*

"The method is scientifically correct and perfectly effective.'—*Guy's Hospital Gazette.*

From a Harley Street Specialist.—"The condition is to a great extent a psychical one, and the admirable results obtained by yourself and your parents have in my opinion been to a great extent due to your personal psychical influence over your subjects. You are at liberty to use this expression of my opinion." (*This letter may be seen.*)

'Stammering: Cleft Palate Speech: Lisping." 2s. 4d. post free.

Of Miss BEHNKE, 39, Earl's Court-square, S.W.

STAMMERING

MOST SUCCESSFULLY TREATED.

RESIDENT AND DAILY PUPILS.

PROSPECTUS AND MEDICAL OPINIONS POST FREE FROM

Mr. A. C. SCHNELLE,

Estd. 1905.] **119, Bedford Court Mansions, London, W.C.**

Price 1s. With Illustrations.

APPLICATION OF TRUSSES

to HERNIÆ. Clinical Lecture delivered at King's College Hospital By the late JOHN WOOD, F.R.S., Senior Surgeon to King's College Hospital. Reprinted from "Medical Examiner."

London: Matthews Brothers, 10, New Oxford-street, W.C.

STAMMERING

W. J. KETLEY, "Tarrangower," Brondesbury, N.W.

(30 years colleague of late B. BEASLEY, Brampton Park, Huntingdon.) Those interested in the subject should write for his book, which will be sent post free.

Ideal Doctors' Cars

HUMBER STANDARD HILLMAN

We specialise in Deferred Payments. ONLY 4% extra.

Any Make of Car Supplied.

Prompt Attention to all Enquiries.

SAUNDERS' GARAGE

32, High Street, Hampstead, N.W.3.

'Phone: Hampstead 8220.

An Address

[ABRIDGED]

ON

BRAIN SURGERY.

Being the Presidential Address delivered at the Annual Meeting of the British Medical Association in Glasgow on July 25th

BY SIR WILLIAM MACEWEN, C.B., LL.D., D.Sc., F.R.C.S., F.R.S.,

REGIUS PROFESSOR OF SURGERY, UNIVERSITY OF GLASGOW.

[AFTER welcoming to Glasgow, "one of the most cosmopolitan of industrial cities," the members of the Association and mentioning some of the distinguished medical men of the past whose names were associated with Glasgow University, Prof. Macewen went on:]

EVOLUTION OF THE KNOWLEDGE OF BRAIN FUNCTION.

In my student days physiologists taught us that the brain acted as a whole, without recognition of localised areas within it endowed with specialised function.

In 1861 Broca demonstrated at the Anthropological Society in Paris the brain of a man who had for 11 years lost the faculty of speech. The specimen showed softening of the third frontal convolution on the left side. Broca deduced from that and other observations that the base of the third frontal convolution on the left side was the seat of the faculty of articulate language, and further advanced the suggestion that there were probably other areas in the brain connected with localised function. Broca's discovery was iconoclastic; it shook the notion entertained regarding the unity of brain function to its foundation. Clinicians such as Charcot and Pitres were generally aware that lesions of one side of the brain were often associated with paralysis of the opposite side of the body; and Hughlings Jackson suggested that unilateral convulsions indicated in the same way disease of the opposite side of the brain. In 1869 Hughlings Jackson stated that, in his opinion, there were many limited areas in the brain connected with distinctive functions, founding his opinion on clinical experience and direct observation of pathological facts. He also foreshadowed the existence of higher psychic centres.

The views of Broca and Hughlings Jackson were subjected to much controversy and doubt. A new method of investigation was introduced by Fritzig and Hitzig in 1870, who applied the faradic current to the brains of dogs, and found that in response to such stimulation of certain localised areas coördinated movements were evoked in distinct groups of muscles on the opposite side of the body. Ferrier published in 1873 the results of his memorable research on the brains of the higher apes, mapped out definite areas (chiefly in the central convolutions) which responded to faradic current, producing definite movement of groups of muscles on the opposite side of the body, differentiating areas for the various parts of the face and upper and lower extremities.

Whether deductions made from the localisation of function in the motor cortex of the brain of the lower animals were applicable to man had yet to be proved. This I had the opportunity of doing, by direct observation of the effect of injuries, especially those of a limited character. By the application of this knowledge and the deductions drawn therefrom, cerebral neoplasms were diagnosed, and the restoration of function after their removal aided in confirming the localisation.

Opportunities afforded for observation on man convinced me that both in Broca's lobe and in the ascending central convolutions there were areas in the brain with specialised functions, and by deduction that the same existed in other parts of the brain.

MOTOR LOCALISATION.

In the early "seventies" numerous occasions presented themselves for noticing the effects of interference with the brain of man, and it was early apparent that injury to the ascending convolutions induced motor disturbances of the opposite side of the body ending in paralysis, when due to pressure or destruction of brain tissue; and to spasms when due to irritation of the cerebral cortex. Especially were these convincing when cases of limited lesion were followed by monoplegias on the opposite side of the body. These were relieved by operation, the function of the part being restored by the removal of the lesion from the brain. This was also demonstrated in hemiplegias, due in some cases to extra- and in others to sub-dural hæmorrhage exercising pressure on the brain, and the speedy recoveries following their removal; whereas, in the intra-cerebral hæmorrhages in the same regions the recoveries after removal were protracted and incomplete in proportion to the damage done to the brain tissue itself. Such traumatisms were not always accompanied by external evidence of injury, and where external evidence of injury did exist it did not always correspond to the damaged part of the brain.

When motor function was interfered with by pressure it was found safer to operate over the area of the brain whose function was implicated than to take external injury of the scalp or skull as a guide. Lesions of an idiopathic kind, when they presented themselves with disturbance of localised cerebral function, were exposed in the same way and where practical were removed. Several of these idiopathic lesions were found to present more definite symptoms of their localisation than most traumatic lesions. Thus, when an abscess of the brain presented itself with symptoms of motor aphasia, it was diagnosed to be located in or near the base of the third frontal convolution, and where it was found; and when a tumour with multiple symptoms indicative of primary involvement of the anterior part of the left frontal lobe with secondary extension to the ascending frontal convolution presented itself, the diagnosis, though more difficult, was made with sufficient approach to accuracy to enable the tumour to be located and removed by operation (1879), giving complete relief to the symptoms and curing the patient. There were several tumours in the motor cortex and one in the para-central lobe diagnosed (in 1883) and operated on. All of them were diagnosed and the neoplasm successfully removed from the brain with the restoration of function. One case described as a focal lesion in the motor cortex from which blood and disintegrated tissue were removed was probably a disintegrated glioma into which hæmorrhage had occurred, though at that time the appearances of disintegrated gliomas had not been sufficiently recognised.

At this period Ferrier visited the Royal Infirmary, making inquiry into the function of the brain in man. The question was raised as to whether the information laid before us by Ferrier in his work on the brain of the chimpanzee had borne fruit in our operations on man—especially as to whether the ascending convolutions in man had been found to correspond in function to the analogous parts in the brain of the chimpanzee. To this question an affirmative answer was given, and it was suggested that a demonstration such as we could give would be welcomed by the scientific world, where confirmation of these points was eagerly awaited.

In the year 1888 I had the opportunity of addressing the British Medical Association on the subject of brain surgery, and then presented lesions from many different regions of the brain which had been diagnosed by localisation of functions and had been removed by operation. In the years that followed much work was done by surgeons toward the elucidation of the functions of the brain, the pathology of the lesions and their mode of removal. Hughlings Jackson,

Mott, and Gowers continued to give inspiration from the clinical side. Ferrier and Horsley and Beevor did much painstaking investigation on the brains of a variety of animals, and their results were of much value. Horsley, Godlee, Ballance, and many of their London colleagues followed these by brilliant operations on man. Horsley was indefatigable in his research work, and everyone regrets that in his devotion to national duty his life was sacrificed on the burning plains of Mesopotamia. In these early days Ferrier in London was the *vis a tergo* to many of the surgeons and helped to stimulate and give them confidence.

In America there was likewise a vigorous growth of cerebral surgery, and those who took up the subject enlightened it, such as Allan Star, my old friend Keen—the youngest man in America—Harvey Cushing, and many others, all doing valuable and accurate work. D'Antona of Naples, Durante of Rome, Lucas-Championnière of Paris, Bergman and Krause of Berlin, were prominent at the earliest period of this evolution.

SENSORY LOCALISATION.

From direct experiment on animals it was at first announced that both pre- and post-Rolandic convolutions were concerned in the production of movement, and were included therefore in the motor area. While accepting tentatively this conclusion founded on direct experiment, cases arose in man in which sensory impressions were the only phenomena produced by lesions in the cortex of the post-Rolandic convolution. In other instances the lesion produced primarily sensory impressions, yet from extension forward the floor of the Rolandic fissure became involved and motor symptoms developed.

Such cases were recorded by me in 1888: in one of them a protospasm of the hallux was preceded by sensory impressions—what was described by the patient as a "curious sensation"—and pain in the great toe. The pain in the great toe was always present, but occasionally it became so severe as to make the patient cry out. The lesion was found mainly in the upper portion of the ascending parietal convolution; a smaller one of more recent origin was discovered in the upper part of the ascending frontal convolution, and this was the cause of the later motor spasm of the toe.

A somewhat similar instance appeared in another case in the same brain centres some years after. In this a sensory impression of the right foot heralded the invasion of the upper parietal convolution of the opposite side. The lesion was removed in a wedge-shaped portion of brain tissue, the patient quickly recovering under one dressing. Pain and discomfort in the foot entirely disappeared after the operation, but there was instead a numbness or—when the foot was left to itself—a "want of precise sensation of how to place the foot." Automatic associated movements, such as walking, were easy on a pavement, and when the patient concentrated attention in the movements of the foot they could be made according to will. After the first three months the patient walked very well, though she said there was still a trace of the defect "in the feeling" of the foot.

In several other cases neoplasms and traumatisms in the post-central convolutions produced sensory impressions in various parts of the body without motor phenomena. In others the sensory impressions were associated with motor phenomena—monospasms or convulsions, and others with paralysis. In the majority, however, the lesions in the motor area involved both ascending convolutions, and the motor phenomena, being more obtrusive, were more noticed.

It was evident that a discrepancy which required explanation, existed between the clinical data in man and those of direct experiment on the chimpanzee. Could it be due to the inability of the lower animals to express their sensations in language intelligible to man that the sensory phenomena were missed? Even were it so, it would not account for crediting the ascending parietal convolution with the function of producing motor phenomena when faradically stimulated.

From such clinical experience one was therefore prepared to accept the conclusion drawn from Sherrington's notable research on the brain of the higher apes in which, contrary to the deductions of other experimenters, he found that the ascending parietal convolution did not respond by production of movement when stimulated faradically. This was a comforting conclusion to the clinician, as it brought direct experimental research into line with the observation on man, and confirmed the latter in a way which would have taken many decades to have made *positive* by clinical observation alone. He showed that the ascending frontal and the floor of the fissure of Rolando alone responded to faradisation, producing movements of the affected parts on the opposite side of the body. In clinical work the invading lesion does not always limit itself to special areas of localised function. When sensory symptoms, which do not prevent the use of the limb, appear primarily, they are apt to be overlooked or their importance minimised, and when by extension of the lesion into the pre-Rolandic area motor phenomena are presented, the sensory are apt to be overshadowed.

The cyto-morphology of the anterior central convolutions differs from that of the post-central. The Neister-Betz pyramidal giant cells exist in the anterior convolutions and not in the post-central. This may be made use of in examining specimens taken from the brain by operation, but cannot contribute to the primary diagnosis. The difference in the architectural arrangement of the cells in the two ascending convolutions would a priori indicate difference in function.

The sensory phenomena exhibited when other regions of the brain have been the seat of lesions have been previously recorded by me, and subsequent experience—by many others as well as myself—has abundantly borne out the conclusions there arrived at. The word-deafness and psychic-blindness have been particularly illustrated in one patient who had a lesion of the posterior area of the upper temporal convolutions with extension to the angular gyrus. This patient heard and saw physically, but did not comprehend what he saw or heard. "Hearing he heard not, and seeing he saw not." He asked for a drink and would persist in asking for it. Though the nurse had duly presented him with the drink and requested him to take it, yet he did not take it, but again repeated his request. When, however, his sense of touch was brought into play by placing the glass on his lips, he at once perceived and took it into his own hands and drank. When the lesion was removed, he saw and heard correctly and appreciatively and tried to explain his previous difficulties.

LESIONS IN SILENT AREAS.

Though there are some areas of the brain whose functions we do not yet know sufficiently to enable us to determine when they are invaded by small neoplasms, yet when these neoplasms increase in size sufficiently to involve adjacent parts, by pressure or otherwise, the implication of these parts, in definite order, aids in indicating the position of the lesion in the silent area. Take, for instance, the invasion of the temporo-sphenoidal lobe by a large neoplasm.

While localising symptoms of a small abscess situated in the middle of the temporo-sphenoidal lobe above the tegmen are still insufficient to enable one to make a definite diagnosis, the symptoms occasioned by a large abscess (or tumour) in that region are quite pronounced. This symptom-complex of large lesions in the temporo-sphenoidal lobe was pointed out by me in 1884 and again in my address in 1888. Since then it has borne the test of further experience. The symptoms are due to pressure extending upwards from the temporo-sphenoidal lobe to the adjacent structures and affecting them in ordered sequence. They are, first, a passivity over the face on the opposite

side from the lesion, which, as the lesion extends, becomes a definite paresis, and may ultimately pass into paralysis. The facial paralysis is, however, like that from all lesions of the facial centre of the cerebral cortex—not complete—as the power of emotional expression is retained to a slight degree, and the patient has the power of closing the eyelid by an effort of will, though it remains partially open during sleep. This is of importance as, in many cases where the temporal bone is affected, facial paralysis is present on the same side as the lesion, and as it arises in such a case from damage to the nerve trunk it is complete. The power of emotional expression is not retained in the upper part of the face.

The arm on the opposite side from the lesion becomes affected with paresis after the involvement of the face, and it may become completely paralysed—though in abscess it is seldom that it is allowed to reach that stage. The leg is not affected.

Coincidently with the facial paresis, and sometimes preceding it, there is dilatation of the pupil on the *same* side as the lesion, along with a degree of ptosis when the neoplasm is large. The pupil on the same side as the lesion is affected early, but at first so slightly that the degree of dilatation may easily be missed unless specially looked for and both eyes tested for accommodation. It soon becomes dilated, however, and very sluggishly responds to light and accommodation, and latterly it becomes fixed—stable mydriasis. The ptosis is usually very slight, and may be absent. The explanation of these phenomena is simple if one looks to the contour of the cavity which contains the temporo-sphenoidal lobe, which elsewhere has been described by me as a "box without a lid"—so that the way pressure from within can be relieved is upwards, and consequently the motor cortex becomes affected, while the third nerve is caught by pressure against the posterior clinoid process.

The same symptom-complex was found by me to accompany a tumour growing in the temporo-sphenoidal lobe and displacing the brain tissue upwards.[1] The symptoms succeeded one another very slowly but in perfect sequence.

The varieties and characteristics of cerebral tumours are now well known. We have the simple subdural meningeal fibromata which exercise pressure on the brain and which are so easily removed—of which this is a specimen. It was forcibly ejected so soon as the dura was opened, the cerebral pressure within speeding the parting guest. At the other extreme we find the sarcomas of the meninges and gliomata of the brain which are both often difficult to eradicate.

The size of the tumour of the brain ought not alone to determine the question of removal. The smaller the tumour the greater the credit in diagnosing and removal, as extent of invasion and the pressure effects therefrom will be the less. The larger the size of the tumour the greater is the destruction of brain tissue and the greater will be the encroachment on the membranes and cranial walls necessary to give relief. One ought not, however, to be deterred from operating on a large tumour merely on account of its bulk, as in most cases the opening of the cranial walls will at least give relief to symptoms and often will retard or prevent blindness ensuing upon optic neuritis with choked disc. Some of the larger tumours are amenable to removal with good results, as, though large, they are of a nature which lends itself to easy removal, because the tumour has undergone degeneration. After each operation many patients have experienced relief of symptoms and restoration of function.

TUMOURS OF THE HYPOPHYSIS.

Many such tumours have been reported as having been operated on with a considerable measure of success. Horsley had at an early period four cases. Their interest has been heightened by the growth of knowledge as to the influence of the pituitary body on growth and the production of acromegaly.

There have been four cases in my experience in which the pituitary body was diagnosed as being involved. Two of these were not operated on: one on account of the general weakness of the patient, the other as the progress was slow and the symptoms so slight that operation was not advised.

One of the cases operated on was a fibro-adenoma growing from the hypophysis which had caused absorption of the sella turcica, as seen by X rays—the absorption taking place principally forward toward the frontal lobe. The patient had a degree of bilateral temporal hemianopsia, unilateral loss of smell (anosmia), and severe frontal headache. The tumour was removed by the temporal route and the patient made a good recovery. Though the slight degree of acromegaly which was present before the operation did not seem to have been much relieved, there was, however, no increase after the operation.

The other case was of a peculiar type—a fibro-cellular tumour or bundle of tumours—of much elongated polypoidal form, springing from the membrane of the hypophysis and involving its substance. The radiogram showed much destruction of the sella turcica forward and downward. The sense of smell was absent in the left side and it was defective on the other; the sight was so defective on the left side that hemianopsia could not be made out, though hemianopsia was present on the opposite side. There was proptosis of the left eyeball, evidently from pressure in the orbital cavity. He complained of a constant heavy feeling in the left side of the brow and pain in the left eyeball and over the supra-orbital nerve distribution. There was a slight degree of acromegaly, the hands and the lips and nose were thick.

The operation in this case was through the fronto-temporal route. On opening the dura and lifting the frontal lobe, what seemed at first to be a single tumour was exposed, but on attempting to remove it the mass separated into a series of polypoid growths with their base forward lying in line with the olfactory lobe. The longest of them measured one inch and three-quarters, the shortest one and a half inches. The breadth of the broadest part was about half an inch. They were deep red in colour and vascular and somewhat firm to the touch. There was a depression in the frontal lobe in which they lay. Four of these elongated masses within the subdural space, when elevated or turned aside, showed a fifth one, the base of which had softened and thinned the dura and made a depression through the orbital plate of the frontal by which it exercised pressure on the orbital cavity. The bone under this growth was dark coloured and vascular. The attenuated pedicles were attached to the membranes of the hypophysis but also involved the tissue of the gland, a portion of which had to be removed with each. Free bleeding ensued from the veins of the cavernous sinus during and after removal, which pressure arrested.

The patient made an uninterrupted recovery. The hemianopsia and anosmia disappeared along with the pain in the head. He lost the appearance of acromegaly, though part of this might be due to the general thinning of the whole body. He lost flesh and weight, but remained healthy.

Polypoid growths are much more likely to arise in the sphenoidal cells, and, a priori, when growing from the membranous covering and body of the pituitary, one would have expected them at least to have invaded the sphenoidal cells in process of growth. This, however, they did not do in this case.

PHYSICS OF THE BRAIN AND MENINGES.

Questions have been asked, especially by foreign colleagues, as to what were the essential elements in brain surgery that promoted success, and how it was that pyogenic invasion of the brain in the form of brain abscess would be overcome. It is apparent that one must have an intimate knowledge of the brain and its

[1] Wernicke has subsequently also drawn attention to the dilatation of the pupil and ptosis consequent on pressure on the trunk of the nerve on the same side.

function—its anatomy and physiology—and thereafter observe the rules whereby one may gain access to the structure with the least possible damage. The anatomy of the brain must be taken in relation to its envelopes, the head as it is normally and not the soft contents of the cranium, separated from supports lifted apart and altered in form by being laid on a flat surface.

As it is leptomeningitis that is the most fatal complication in abscess of the brain, attention to the pia arachnoid and the subdural cavity is necessary.

Not so long ago the peritoneum was supposed to be inviolable; its opening was to be avoided on account of peritonitis, which ensued from the entrance of organisms. Now, with asepticity, that problem has been overcome, and the peritoneum is invaded daily without evil consequences. The pleura likewise was not to be opened, as the physiological dogma of the day taught that the lung was only kept in place through atmospheric pressure, and to open the pleural cavity was to induce instant collapse of the lung. A different view of the physics of the lung recognised that molecular cohesion—or surface tension—between the two layers of the pleura is the main factor in maintaining the lung in full expansion, and that after the two layers have been separated while performing operations on the lung, the aid of this force may be relied on to restore the lung to its normal state of expansion. So that, by making use of this force, operation on the lung can be freely undertaken, without resort to special apparatus.

The physics of the brain and its meninges are also worthy of attention, especially by those who desire to invade the subdural cavity—as anyone must who is going to perform an operation on the brain.

Doubtless everyone knows the elemental anatomical facts regarding the cerebral coverings and their relations, but do we fully realise and act upon them? We know that there is a subdural space, but there is a confused idea that the spider has spun its web with many attachments between the dura and the surface of the brain.

The arachnoid scarcely exists as a distinct continuous detachable membrane over the surface of the cerebrum, but rather as a few sparsely distributed cobweb strands of connective tissue bridging the surface of the sulci, and from which a few detached strands may occasionally be seen during life suspending the blood-vessels on the surface of an œdematous brain. Therefore one agrees with Henle [2] rather than with Bichat in his views of the arachnoid. A slight extra separation of the pia from the dura by fluid, such as external hydrocephalus or a subdural hæmorrhage, disrupts many of the cobweb strands, and a clear, subdural space exists, extending from the vertex to the base, and from that to the spinal cord. When this free subdural space obtains, a subdural hæmorrhage occurring on the vertex would be free to spread in a thin layer over the surface, and to envelop the brain, extending to the base, and might penetrate into the spinal canal and prove fatal by pressure on the respiratory centre.

How many times after traumatism does the blood effused into the subdural space spread and gain access to these vulnerable basal parts, especially where the practice obtains of placing an insensible man on his back, gravity thus aiding toward the fatal issue!

During the process of exposing the brain for the removal of neoplasms and while pushing aside the external coverings, if hæmorrhage occurs into the subdural space it is serious, and the more so if, after wounding a large surface cerebral vessel, the free opening of the skull and its membrane is delayed. For this reason, among others, the ordinary trephine is seldom used, a large osteoplastic flap being raised instead. The dura is opened from the centre of the exposed surface, care being taken to do so without injuring any of the vessels of the pia mater. In this way a clear view is obtained of the fresh normal surface of the brain without obscuration by blood. The delicacy and tenuity of the superficial cerebral vessels is so great that they abrupt on very slight traction, and in order to ligature them successfully one ought to have previous practice, by ligaturing the strands of a suspended cobweb—and so realise how big and how forceful the fingers are. One has also to educate oneself to refrain from ligating any vessel that may be circumvented, as anæmia of even a minute area of the brain may lead to degeneration and perversion or destruction of its function.

[2] Henle describes the arachnoid as a connective tissue of extremely "loose make-up."

MENINGEAL INFECTION.

Pyogenic organisms introduced into such a cavity would be disseminated along the loose strands of connective tissue of the pia arachnoid with great rapidity, so that in a few hours the whole pia arachnoid would be diffusely affected and the whole cerebro-spinal system involved. When the pia is affected the whole cerebral cortex is involved.

Though this is well recognised in the steps taken to secure asepsis from without, is it equally carefully observed when removing pyogenic or pathogenic organisms from within a walled-off area in the brain already guarded by defensive adhesions? Does the operator follow the rules he would observe were he about to deal with a localised abscess bound off by adhesions from the general cavity of the peritoneum? Presumably no one would care to open such an abscess through the healthy peritoneum and thereby expose the general cavity to invasion, even though it might be the easier route to follow.

In the earlier periods it was believed that abscess of the brain was pyæmic, and therefore regarded as hopeless.[3] Even were the abscess of the brain pyæmic in origin and located in the white substance it could be dealt with surgically, assuming provision were made for the uncontaminated preservation of the subdural space by preventing pyogenic matter from coming into contact with the soft membrane and setting up a leptomeningitis. Therefore adhesions, natural or artificial, must be sought before opening the abscess through the subdural space.

It has been recognised that the majority of uncomplicated brain abscesses—such as those occurring in the temporo-sphenoidal lobe—form by continuity of invaded tissue directly from the point of origin, and soldering of the meninges occurs in process of, and in many cases prior to, the formation of the abscess. There is thus a route or pathway of invaded tissue between the point of origin and the abscess round which Nature attempts to form a defensive barrier.

In endeavouring to relieve the contents of the abscess one must keep within the limits of the adhesions by traversing the parts through the affected area from the original focus to the abscess itself. The evacuation would then be accomplished under favourable conditions—as leptomeningitis would be unlikely to occur. It is doubtless more difficult to follow this tract to the abscess than to open directly through the skull, and the latter gives more room for manipulation. But in adopting this course one is opening the general subdural cavity and exposing it to contamination unless one affects the closures of the space by soldering the membranes artificially before proceeding to evacuate. As leptomeningitis is the most fatal complication of brain abscess it is of paramount importance to prevent its occurrence.

The method of removing the osseous covering in order to gain access to the abscess is of importance, as, if in so doing, vibration of a rude kind is produced, the spicules of eroded bone at the seat of disease being bathed in pyogenic matter are apt to penetrate the soft membranes with their jagged edges, and to inoculate the pia-arachnoid and set up leptomeningitis.

[3] At an early period it was said by a very eminent member of our profession that it was useless to attempt removal of a brain abscess, as they were all pyæmic and would all prove fatal. Is this belief quite dead?

Instruments which do their work more gently without producing violent vibration, such as the surgical burr, which may be held lightly like a pencil in the guiding fingers, remove the bone in minute flakes without injuring the soft parts.

Though having used the osteotome and mallet in performing thousands of osteotomies on the bones of the extremities, it has never been used by me on the skull, as it was feared that the violent impact and vibration occasioned thereby would be detrimental to the delicate contents. Even for the removal of cerebral neoplasms the violent vibration in opening the skull by chisel and mallet must in many cases be detrimental to the softened cerebral substance and the enlarged thin-walled blood-vessels in the vicinity of the tumour or abscess.

PREVENTION OF POST-OPERATIVE ADHESIONS.

Having removed the neoplasm from the brain with as little interference of its structure or its blood-supply as possible, one has to endeavour to mitigate the damage to the surface of the brain and to restore the subdural space to its normal conditions.

Can adhesions between the brain surface and the dura or skull itself be prevented?

In the abdominal cavity adhesions give rise to considerable and sometimes serious trouble. In the intracranial cavity adhesions between the pia mater or the nude brain and its rigid envelopes may mar the subsequent results of the most brilliant operation. By the constant dragging of these adhesions on the brain tissue extensive degenerative processes may be set up, giving rise to fresh brain areas being involved which may prove fatal. Normally the brain floats in its water bed and is contained within its covering like a specimen in a bottle which has been specially shaped to the form of the specimen; this economises space and fluid. Its surface is not adherent to any part of its fixed coverings, though attached basally by certain nerves. This allows of accommodation to the varying conditions of the brain in expansion and contraction, in response to vascular conditions and to the varying positions of the body. When the brain becomes fixed by an adhesion to the rigid wall two things happen: the motor cortex at that point does not function properly, and secondly, there is a dragging at the point of fixture and for a considerable distance beyond, and as this dragging is repeated with varying conditions of the brain the mechanical interference tends to produce degeneration in the white substance as far as the strained brain fibres extend. This may be mitigated by guarding against sudden changes in cerebral vascularity and quick alterations of posture; the patient himself realising his altered condition, aids in these directions.

It is very desirable to prevent such anchoring of the brain, or if this be impossible to mitigate the evil by making the adhesions as long as possible, so that there would be a little play or yield in the cable; the brain would not then be so suddenly checked in response to its varying conditions.

In endeavouring to prevent adhesions one misses the arachnoid membrane. The spider's web would be useful to cover a wound in the brain and to intervene between the cerebral surface and the dura. Very occasionally by diligent search a tangible portion of the web has been found sufficient to cover a small surface. If one only had in the brain coverings an apron like a modified omentum, which is of so much service in preventing adhesions between parietal and visceral layers in the abdomen, it would answer the purpose admirably. On one occasion a thin portion of omentum was used to cover such a defect between a large nude portion of the brain and the dura. It was carefully prepared and easily applied, accommodating itself to its new situation, and apparently served its purpose, as this patient had no after-evidence of adhesion. The specimen was taken from a redundant omentum, removed during a radical cure of hernia. One of the most easily procurable substances is blood clot. It is bland, mild, and accommodating, and allows sufficient time to elapse for the healing of the wound in the brain before complete absorption takes place. Gold-foil is also of use, but it does not become absorbed and sometimes seems to occasion irritation. On one occasion a portion of gold-foil had to be removed by subsequent operation as it had occasioned irritation and slight spasms.

Whatever method is adopted the main point is to secure the closure of the defect in such a manner as to refloat the organ and to restore the free flow of cerebro-spinal fluid. Although brain anchoring does produce serious effects it does not affect all equally seriously. Some who have been operated on at an early period of the new era of brain surgery and had the misfortune of having a certain degree of brain anchoring, have lived many years of useful life—one patient over 30 years. They exhibited slight defects, such as vertigo and sickness on sudden changes of posture, such as stooping and then rising quickly. One had in addition occasional faintness, slight unconsciousness, and convulsive movements of the muscles of the opposite side, which only lasted a few minutes. Games such as tennis could not be played except with restraint. One patient had more serious fits and mental confusion whenever he took influenza. He had to remain in bed while the attack lasted. Otherwise he lived for over 20 years and did good work. He is still alive and at work.

It has been advised to leave the large aperture in the skull open to obviate some of the effects of cerebral adhesions, and though benefit in this direction may ensue, other more serious disadvantages obtain. The brain is never so happy as when at home contained within its own normal case. The restoration of the osseous covering by reimplantation of bone has long been practised by me.

TUBERCLE OF THE BRAIN.

Regarding the most frequent invaders of the brain, syphilis and tubercle, one is seldom called on to afford relief for such lesion by operation. They are diseases due to organisms which in the former are always and in the latter are apt to be generalised throughout the body. Though these diseases are amenable to medical treatment, yet both produce neoplasms which undergo degeneration and often caseate, and once such a necrotic neoplasm forms, medicaments circulating through the blood-stream, though they may affect the living tissue in their periphery, cannot penetrate into the dead mass, and therefore it remains. Though it might be otherwise quiescent, it presents itself in the brain as a foreign body exercising pressure on the delicate brain structure to its detriment, producing focal irritation or generalised symptoms according to its extent and distribution.

Tubercle is often meningeal, and in the form of acute diffuse cerebro-spinal tuberculous leptomeningitis so impresses itself as a hopeless condition which at least no operative measures can permanently relieve, that this picture overshadows other forms of tubercle in the brain which are apt to be placed in the same category. Yet tubercle is not always meningeal, and even where it is it may be localised.

Tubercle may be deposited primarily in the brain substance, in the white matter, where the finer vessels of the brain penetrate, and there cause concentric nodules which grow occasionally into very large tumour-like masses. Some of the largest solid neoplasms in the brain are tuberculous, and from their size threaten life and do kill from pressure—mainly, if not alone. That is important, as in these cases there is no meningitis or evidence of dissemination, and therefore had the bulk been removed relief and probably cure could have resulted.

When tubercle is deposited in the fine vessels of the white matter of the brain primarily, if near the cortex, the extension of the nodule peripherally may involve the meninges and set up a secondary lepto-

meningitis if soldering of the membranes had not preceded and prevented the invasion of the subdural space. This is a second source of danger from the primary cerebral tuberculous nodule and another reason why such nodules would be better removed were that possible, with a reasonable margin of safety and the prevention of dissemination. When possible one ought to secure adhesions of the membranes before removal of such foci.

A number of these deep-seated tuberculous neoplasms in the brain are single or solitary; this has been proved at the autopsy. Some of those that have been removed from the brain during life were apparently solitary, no others having signalled their existence, and the patient has either lived years and has died from other causes, or from tuberculous attacks in other parts of the body without signs of recurrent cerebral involvement. Liquefaction of such tuberculous neoplasms occurs and forms one of the so-called "encapsulated abscesses" containing the characteristic white creamy emulsion-like fluid which are found in the brain. The histories of many of these point to their long duration—many years, some a lifetime. If there be an exit through the meninges and skull through which they may empty themselves, it is possible they may do so at intervals over long periods, and when such an exit exists other organisms may enter. The pyogenic organisms finding in the tuberculous emulsion rich pabulum, readily invade the cavity and set up therein an acute pyogenic action. In one instance the pyogenic organisms invaded the periphery of the encysted abscess, destroying the brain extensively in its circumference and forming a sea of pyogenic pus, in which the encysted abscess, containing its characteristic creamy tuberculous liquid, was seen floating intact and from which it was removed by operation.

One of the patients from whom an encysted tuberculous so-called "abscess" of the brain was removed 35 years ago is still living and at work. Presumably this was a "solitary" tuberculous brain lesion.

When tuberculosis invades a localised portion of the brain it may give rise to sensory or motor symptoms and to epilepsy of a Jacksonian type with the usual phenomena. Removal of the affected portions stops the epilepsy and prevents dissemination of the tubercle.

NEOPLASMS OF THE CEREBELLUM.

Tuberculosis occurring under the tentorium cerebelli, where it forms formidable neoplasms, presents quite another problem. Here the pressure of the growth gradually persists until it affects not only the vital centres—the respiratory and cardiac—but is far-reaching in its consequences. The whole cerebrum is benumbed from the distension of the ventricles with cerebro-spinal fluid and the production of œdema of the brain. The eyesight is involved by the induction of optic neuritis and nerve atrophy which destroys the sight. In the later stages the patient presents a deplorable aspect—the earthy pallor of the face, the complete atony, scarcely able to move a limb, the disturbance of equilibrium so marked that while lying flat in bed the bed heaves, the furniture, the nurses, and the ward gyrating like a ship in a tumultuous sea. As the patient lies groaning with pain, headache, vomiting, scarcely able to breathe, with slow pulse, he completes a picture of agonising misery which compels relief. He is virtually being crushed to death.

The free removal of the osseous envelope aids, the full opening of the dura affords much and instantaneous relief, which is increased by inducing the neoplasm to escape from the cerebellar contents. To this end the opening may be extended over the whole cerebellar fossa, the strong girders being left intact—and even, if need be, the opening may extend into the foramen magnum at its posterior aspects. This gives speedy and effective relief to pressure on the medulla, and the cut edges of the foramen are guarded by that portion of the cerebellum which normally dips through the foramen magnum into the upper portion of the spinal canal, and which does so to a much greater extent when the cerebellum is under severe pressure from abscess or neoplasms. When a patient after an operation of this kind has recovered from the sleep of exhaustion induced by his long suffering and is able to appreciate that he is actually free from his terrible ordeal with all its pain, vertigo, and sickness, the look of relief—the smile that lights his face—is worth much!

It is, however, at the very early period of invasion of the cerebellum that the diagnosis is of so much importance, as the disease could then be removed by a smaller operative procedure, and the prognosis would be much more hopeful; and even were the operation unsuccessful in affording permanent relief, it would prevent the patient from undergoing the crushing agony. At the early period, however, the diagnosis of tubercle in the cerebellum is difficult, and sometimes months elapse—sometimes many months—before symptoms occur sufficiently obtrusive to arrest attention. As these neoplasms form frequently in children, some of school age, their early indications are insidious and are often misconstrued. They occasionally occur in bright children who have done well in school, who after a time cannot maintain their place, appear careless and negligent, and are sometimes treated on this assumption. Later they become listless, dull, and apathetic, and no longer engage in the vigorous games they previously enjoyed. The tumour is in the cerebellum, yet it is the cerebrum that affords these early symptoms. The cerebrum has become affected by the distension of the ventricles and involvement of the optic tract. The differential percussion note reveals the presence of the distended ventricles.

In one such case—one of many seen—the wise teacher, instead of punishing the boy, sent him to the father, relating the change in his school behaviour and his seeming loss of interest in his work. The parents could not find anything the matter, but brought the boy to me for examination, as they said if there were nothing wrong with him mentally or physically they would know how to act. Much to his astonishment, the father was told that the boy was suffering from a form of tumour, probably situated in the posterior part of the brain, which would eventually declare itself in certain directions unless it were relieved. Although the boy thought he could see quite well, yet the visual acuteness had diminished; there was slight turgescence of the optic discs. Though he had no ataxia at the beginning of the examination, it became distinct after his pupils had been dilated with homatropine, and the accommodation was suspended. He was aware of not being so sure of his movements in the dark as he used to be. The percussion note over the head—the pterion—revealed the presence of considerable fluid in the ventricles, and that, along with other phenomena, explained the cerebral symptoms.

Abscess of the cerebellum when small and limited is easily removed, the difficulties lying more in the early diagnosis of the location of the abscess than in the removal of it once the diagnosis has been made. When due to extension backward of pyogenic processes from the middle ear the location of the infected tract in the vicinity of the knee of the sigmoid sinus is so constant that it aids in determination of the point of access to the pus.

In large abscess of the cerebellum, however, pressure results ensue, though the pyogenic process being much more acute the pressure effects on the adjacent structures are intensified by the inflammatory action with its attendant œdema—hence the respiratory difficulties threaten life occasionally with tragic suddenness. Though usually there are premonitory signs of respiratory involvement sufficiently in advance to afford time to rectify the condition by operation, yet sudden access of œdema may precipitate a fatal issue. In four instances of large cerebellar abscess, so quickly had the respiratory difficulties ensued that operation

had to be performed by me while artificial respiration was being carried on. In one of these a patient who had become unconscious before admission to the hospital had only reached the ward when his respiration ceased. Artificial respiration was commenced at once and continued until operation could be performed. The whole operation had to be conducted simultaneously with the performance of artificial respiration, and as the respiration was paramount the position of the patient had to be arranged to accommodate it. Consequently the operation had to be performed from below. No anæsthetic was given as the patient was unconscious. On reaching the abscess two ounces of pus escaped, and shortly after the first spasmodic respiratory gasp occurred, which was repeated, and gradually the automatic respiratory movement was re-established—much to the relief of the staff. While the house surgeon and nurses, who had just been relieved from their arduous and fatiguing work of prolonged artificial respiration were still on the alert with drawn faces and strained anxious expressions, watching the man whom they had such great difficulty in rescuing from the brink, the patient recovered consciousness, and seeing his strange surroundings and the anxious theatre staff exclaimed, "What is all this damned fuss about?" It had a startling effect on the astonished staff—the unseeing eyes, which had been open all the time, suddenly saw! The removal of the pressure and the inflammatory œdema from the respiratory centre situated on the posterior part of the rhomboid fossa had relieved the cardiac and respiratory centres, and the consciousness was restored by the relief of the ventricular pressure on the brain. The patient made a complete and rapid recovery.

CONCLUSION.

Doubtless the dome of thought ought to be left inviolate. It was built that way, but occasionally rude traumatisms and peccant matter invade the sanctuary and have to be followed and removed. It has been said that the brain stands much handling. Possibly! One cannot open the skull as a box and rummage until the object is found. The accuracy of diagnosis is of paramount importance. Many errors of diagnosis may be rectified by exploratory incisions in the abdomen. This is much more difficult in the brain.

The more one sees of the intricate, delicate structure the greater the reverence one entertains for it, and the less one is inclined to disturb its arrangements or to interfere with its function. When it does require to be touched it ought to be with the greatest gentleness, by an acutely sensitive finger, carefully trained and guided by the blessed gift of memory of tactile sensations, to which each new impression may be quickly relegated, grouped, and correlated in ordered sequence. When neoplasms have to be removed therefrom the endeavour is to do so with minimal disturbance of brain tissue. It is for this reason that the impetus received from the intrinsic cerebral pulsations are utilised to aid the extrusion of blood clot or neoplasm through the incision in the brain once adhesions have been loosened, as, though this method takes more time, it does less damage.

Cerebral surgery has been the means of adding to and confirming the knowledge of brain function in man, especially of the regions of the cerebral cortex other than motor, to which experimentation on the lower animals can with difficulty contribute. It has laid bare physical lesions in the cerebrum producing mental aberration, and, by the removal of the lesion and the restoration of cerebral function, has thereby proved that the presence of the lesion was the cause of the perversion of function. In a sense some of these lesions produced in the brain of man may be regarded as experiments carried out by nature with a delicacy, accuracy, and refinement which no human experimenter could equal. Surgery of the brain has its limits, but these have not been reached. There is still a large field for careful observation and accurate work.

An Address

ON THE RELATIVE RÔLES OF

COMPULSION AND EDUCATION IN PUBLIC HEALTH WORK.

Presidential Address delivered on July 25th to Section I. of the Congress of the Royal Sanitary Institute at Bournemouth.

BY SIR ARTHUR NEWSHOLME, K.C.B., M.D., F.R.C.P. LOND.

THE general problem of the relative spheres of compulsion and education has important bearing on every branch of work for the amelioration of human welfare. The social history of the nineteenth century consists very largely in a steady extension of the enforcement of compulsory duties and restrictions in various aspects of communal life. Each of these duties and limitations has been made obligatory by Parliament as the result of public agitation, directed to the support of the weak against the strong, the defence of the exploited against the exploiter, of the purchaser against the vendor, of children against negligent parents, or of the careful against the careless parent. I need only mention Poor-law enactments, enforcing contributions from all in support of the destitute, the various factory and mining Acts providing against accident and overwork, especially of women and children, and the compulsory provisions relating to infectious diseases, to sanitary defects, to food frauds, and so on.

Ignorance being a communal peril, compulsory elementary education has been universally enforced. The parent is no longer free absolutely to control the education of his child; and taxpayers and ratepayers are constrained to pay for the education of other people's children. The nexus of restriction and regulation has extended in all directions; and the diminution of personal liberty thus produced is not only justified but necessitated by communal life. Each restriction has, in fact, been called into being to defend the liberty of the weak against oppression and injury, to diminish the inevitable and unnecessary burdens on the common purse which are associated with unrestrained license, and to aid normal progress in health and civilisation.

In the prevention of disease compulsory measures bulk largely, their success depending almost entirely on the extent to which they carry with them the convictions of the vast majority of the population. They may thus be said to be effective inversely to the extent to which compulsion is needed. Compulsory vaccination against smallpox is the most striking instance of this general rule. This almost unique safeguard against infection is, in substance, only enforceable by consent, though this consent may sometimes be unwilling; and in practice compulsion is limited by exemption on the ground of conscientious objection. The segregation of cases of acute infectious disease now causes no difficulty. It has become realised that compulsion for this purpose confers a privilege, and it is when this is realised that a compulsory measure becomes universally effective.

In the above cases the necessary measures, as, for instance, for enforcing segregation, are strictly limited in time, and for this reason, among others, they are enforceable. But when dealing with chronic infective diseases like tuberculosis and syphilis, we enter into another sphere, in which the practicability of any form of compulsion is necessarily limited by the logic of facts. These cases therefore deserve special study.

Compulsion in Tuberculosis.

In tuberculosis the necessity for controlling infectivity by compulsory means arises chiefly when a patient, for instance a vagrant, continues to indulge in indiscriminate expectoration in circumstances of

crowding, notwithstanding advice to the contrary; and a number of towns possess, and on rare occasions use, powers to secure hospital treatment of such cases. There is general testimony that the possession of these powers is useful as a deterrent to culpable carelessness, and in securing the removal of a patient occupying a crowded room.

But is this compulsory power more than a minor desideratum in the control of tuberculosis? I am not concerned to debate the attempts made from time to time to undermine our appreciation of the value of the official programme for the control of tuberculosis in this country. But, for most of us, our belief in the possibility of greatly reducing this disease, if known measures of control are exercised on an adequate scale in every sanitary area, remains unshaken, and it is one of the disappointments of recent years that inertia and apathy have so often persisted in place of faith and strenuous effort. The official duty of the medical officer of health is to combat this disease by investigation of sources of infection, and by measures calculated to diminish the spread of infection and to remove the factors favouring infection, whether domestic, social, or industrial. A first step towards adequate action is the prompt notification of recognised cases to the medical officer of health as soon as they are recognised. It is notorious that in a high proportion of total cases this is not secured from the medical practitioner, and this is especially true for non-pulmonary tuberculosis. In part owing to this cause, in part owing to failure to seek medical advice, and in part from inertia on the local executive side,[1] a large share of our anti-tuberculosis work has been belated and very partial. I do not doubt the occasional value of the compulsory powers for the segregation of the careless tuberculous sick; but a more rigid enforcement of the regulations for prompt notification would be even more valuable; for compulsion in this direction has definite educational value, besides opening up the way for administrative action. A judiciously arranged appearance in a police court may be made a useful means of cultivating a hygienic conscience; but with increasing sense of communal duty on the part of all concerned this *via dolorosa* to the ideal should seldom be necessary. General coöperation between patient, private doctor, and health officer would imply a standard of moral education in all concerned which would bring us nearer our desired goal than any action based on compulsion, however necessary in the immediate future compulsion may continue to be, for the good it achieves, and still more as a means for rendering future compulsion unnecessary.

Before considering the somewhat analogous case of syphilis we may linger for a moment over the problems involved in

Compulsion and the Prevention of Alcoholism.

This for several generations has been a problem in which the legislature has not hesitated to intervene, presumably in every instance on the initiation of preponderant public opinion. As I have elsewhere stated,[2] the history of the United Kingdom is studded with attempts to control the liquor trade, and to put it in shackles, such as have been found unnecessary for any other industry, except that of prostitution. The necessity for restrictions on the sale of alcoholic drinks is admitted by all, the only difference of opinion being concerned with the extent and details of these restrictions.

Alcoholic indulgence, though diminishing, remains one of the greatest enemies of the public health; and it is well that in the annual reports of an increasing number of medical officers of health it is the subject of comment and advice. Alcohol is a great creator of avoidable poverty. It very commonly makes the bed for tuberculosis, and not infrequently is the final element in lowering the resistance to the promiscuity which is the social cause of syphilis and gonorrhœa. It swells the ranks of fatherless children and of neglected infants; it helps to fill our prisons and our hospitals. It is a source of immense waste of national wealth. Approximately, as a nation we spend every week nearly as much on alcoholic drinks as is spent in a year on the chief branches of public health work.

Whether in this country we follow the example of the United States and of a large part of Canada which have "gone dry"—and which so far as the vast majority of the people are concerned are making this policy effective—or whether we pursue the more gradual process of increasingly stringent regulation of the sale of alcoholic drinks, allowing experiments in local option to be made in every small or large community which desires them, there can be no doubt that we are, as public health representatives, intimately concerned in the diminution of the consumption of alcoholic drinks, extending if the mass of the people persistently desire it to absolute prohibition. By this means the possibilities of increased industrial efficiency, of decrease of accidents, of successful work in housing reform, of greater care of maternity and childhood, of the diminution of tuberculosis and venereal disease, and of crime and insanity, will be enhanced; and, this being so, no public health worker is likely to fear compulsion judiciously applied. That in America compulsion, to the extent of prohibition, represents the result of a steady growth of public opinion over several generations, that it embodies the persistent opinion of a large majority of the American population, and that it will therefore continue to be enforced, and with increasing efficiency, no one who, like myself, has carefully studied all the facts of the case can doubt. Compulsion in this country must similarly fulfil the condition that it represents preponderant public opinion, and especially of public health opinion, and to the extent it does so the path of public health reform in relation to the trade in alcoholic drinks will become much easier.

Compulsion and Syphilis.

For simplicity of argument I omit gonorrhœa from the scope of my remarks, as it is unlikely that success will attend efforts to secure compulsorily either the notification or the continuance of treatment of more than a minority of cases of this disease long enough to be able to affirm that gonococcal infection has ceased.[3] The last-named difficulty arises in regard to syphilis, and will need careful consideration in the discussion which we are to have this morning.

General Principles Justifying Compulsion.

What are the general principles justifying compulsion in public health or social work? They include the consideration that the end aimed at by compulsion is very important for the public welfare, that it cannot be achieved to an equal extent or within a reasonable time by educational measures, not including compulsion, that the compulsion can be enforced, and that it is endorsed by a majority of the community.

For syphilis compulsion is being advocated to secure notification of each case to the medical officer of health, and to enable continuance in treatment until the patient is freed from infection. Complete control over the disease might theoretically be gained (*a*) by ascertaining, so far as practicable, the source of infection in each case, in order, when practicable, to prevent its continuance, and (*b*) by advice and action in respect of each notified case, which may prevent the continuance of infection from this case.

The Scope of Present Legislation against Syphilis in England.

In view of the obvious difficulties under (*a*), the most practicable measure for the prevention of further spread of syphilis is the successful and

[1] Other factors concerned are divided responsibility between county and local sanitary authorities, and between medical officers of health and tuberculosis officers.

[2] Prohibition in America and its Relation to the Problem of Public Control of Personal Conduct, by A. Newsholme. P. S. King and Son, 1921.)

[3] Memorandum V.[21] of the Ministry of Health gives admirable rules as to conditions which justify a gonorrhœal patient being discharged "after completion of treatment and observation." These are unlikely to be able to be fulfilled in most instances in private practice; and they imply a high standard of coöperation between patient and medical officer, which will often not be attained in V.D. centres.

complete treatment of each case; and were this not a special subject of discussion in this section, comment on it would naturally be made at this point. In view of later discussion I content myself with reminding you that venereal diseases in this country have been the subject of unique national legislation, making it an offence for any person other than a legally qualified medical practitioner to treat these diseases. Legislation to this effect was secured at an early stage after the launching of the subsidised schemes for the diagnosis and treatment of venereal diseases, and for educational propaganda regarding them. No such legislation is imposed as to the treatment of any other disease, and it was only conferred in this instance on the urgent representation of the Local Government Board to Parliament that without this power the newly established venereal disease clinics could not be assured of results commensurate with the expenditure incurred and with the national needs. If this law is enforced, the venereal patient must choose between no treatment and medical treatment, unqualified treatment carrying with it serious penalties. There ought, in my view, to be another clause rendering it obligatory on any person suspecting that he is suffering from venereal disease to have resort to medical advice. This will become still more desirable if further action is to be taken to ensure continuance in treatment until the patient is free from infection. The enactment forbidding treatment other than medical could never have been obtained had not free treatment been available for all comers, and the above indicated addition would be equitable, though its enforcement or the infliction of a penalty for non-compliance would only exceptionally be practicable. There appears to be some ignorance of the existence of the above-named enactment, and to be too little effort at its enforcement. In view of the fact that successful treatment is our chief public means for minimising infection, energetic searching out of breaches of this law should surely form an important part of our police and public health work against venereal diseases.

The Difficulties from Discontinued Treatment.

It is well known that many patients discontinue treatment on the cessation of superficial symptoms. I would deprecate the exaggeration which unduly decries the value of anti-venereal clinics, because of this unfortunate fact. In a large proportion of cases cure with cessation of infectivity is secured, and perseverance in present measures and their extension justify us in expecting actual diminution of venereal diseases, of which there are already indications. Even when infectivity has not been permanently abolished, it has often been temporarily removed; and, assuming that the doctor, who should have the coöperation of a confidential social worker, has done his duty, each patient has been instructed in the natural history and dangers of his disease; and if he sins in neglecting continued treatment, he does so, not ignorantly, but against light and knowledge.

In advocating compulsory notification of syphilis we need to bear in mind the objects, already indicated, for which such notification could be utilised. If merely moral suasion to secure complete treatment is desired, this is already secured for every patient medically treated—or at least to an extent which would not be increased by notification, under present conditions of treatment, as patients not under medical treatment will not be notified. If the enforcement of continued treatment of defaulters is the object, it will be remembered that probably more than half the total amount of medically treated venereal disease in the community is treated at the public expense; that it is consistent with the confidential nature of this treatment to use vigorous efforts, short of compulsion, to persuade patients to return for treatment; and an important point for discussion is whether attempts to enforce compulsory continuance of treatment of syphilis will be likely to secure the treatment of as many patients as are now treated. In other words, will the more prolonged treatment of a certain proportion of patients expected to be secured by compulsion compensate for the conceivable loss due to patients refraining from attending publicly supported clinics?

I refer in particular to the possible transfer of patients from official clinics to private medical practitioners because—in the light of our experience with tuberculosis, in which furthermore no question of morality is involved—it is unlikely that private practitioners will generally notify the fact that patients, before completion of treatment and cessation of infection, have discontinued attendance on them. Who is to state when infection has ceased? Medical opinion differs widely as to the length and character of the required treatment, and unsatisfactory certificates of freedom from infection will be given. Long intervals occur in legitimate treatment; are we to expect each practitioner to keep a card index and notify the non-appearance of his patient after a prescribed interval? What about the conscientious objector to arsenical or mercurial treatment who will soon appear? Will not the introduction of the principle of enforced continued treatment lead to an agitation not unlikely to culminate in the repeal of the Venereal Diseases Act, and to limitation of treatment to medical practitioners?

When considering the advisability of enforced notification of syphilis, it must also be borne in mind that a mass of very incompletely utilised information is possessed by the physicians of venereal disease clinics, and by physicians in other clinics.

Use of Information at Present Available.

A large number of women and of young children attend general and special hospitals when suffering from syphilis, interstitial keratitis, &c., and, if the needed staffs were supplied, such cases might without offence, in many instances, be made the means of ridding families of syphilitic infection. The same remark applies to the notifications of stillbirths (after the seventh month) made by doctors, and to the notifications of stillbirths (without any limitation as to period of frequency) made by midwives. Possibly 20 per cent. of these are due to syphilis. It will be interesting to learn whether in any area these means to valuable anti-venereal work have been utilised fully, or whether in most areas they have not been almost completely neglected.

I have not dwelt on these existent but neglected possibilities of anti-venereal work to deprecate, when it becomes expedient, the adoption of compulsory notification of syphilis, preferably first locally, in accordance with our British method of local experimentation, or partially as by rendering infantile and inherited syphilis notifiable, future extensions of notification keeping pace with extension of administrative activity. But I do urge that present openings for valuable anti-venereal work should be exploited, if only as a means of testing the practicability of more general action.

The desirability of compulsory notification of cases of syphilis will become much more evident if we regard the tracing of sources of infection as within the range of practical administration: and it may be in this direction, more than in the enforcement of return for completion of treatment of individual cases, that possibilities of useful action will emerge. In tuberculosis, owing to its long latency, to the delay before diagnosis is made, and to the multiple possibilities of infection, investigation of individual sources is most difficult, and in dealing with this disease we have generally to content ourselves with action based on our general knowledge of sources of infection and of the conditions which render infection potent. But in syphilis, when judicious inquiry is made, it is sometimes possible to discover a common source of infection for several cases, and this may point to the location of prostitutes and action against these. Of course, this can be interpreted as one-sided action, bearing unfairly on women, though some American attempts on these lines appear to show that fairly impartial action may be taken against men and women.

Control of Venereal Disease in U.S.A.

The standard form of law for the control of venereal diseases in the United States comprises the following clauses, which have been approved by the U.S. Interdepartmental Social Hygiene Board.

Section 3.—State, county, and municipal health officers, or their authorised deputies, within their respective jurisdictions are hereby directed and empowered, when in their judgment it is necessary to protect the public health, to make examinations of persons reasonably suspected of being infected with venereal disease, and to detain such persons until the results of such examinations are known; to require persons infected with venereal disease to report for treatment to a reputable physician and continue treatment until cured, or to submit to treatment provided at public expense until cured; and also, when in their judgment it is necessary to protect the public health, to isolate or quarantine persons infected with venereal disease. It shall be the duty of all local and state health officers to investigate sources of infection of venereal disease, to coöperate with the proper officials whose duty it is to enforce laws directed against prostitution, and otherwise to use every proper means for the repression of prostitution.

Section 4.—All persons who shall be confined or imprisoned in any state, county, or city prison in the state shall be examined for and, if infected, treated for venereal diseases by the health authorities or their deputies.

As illustrating the current activities in the State of Pennsylvania, the following extracts from Mrs. J. L. Boyd's report to the Laywomen's Division of the Social Hygiene Congress, held in Pittsburg, February, 1922, may be given:—

The State finds, however, that it cannot stop with the clinics; the sources of infection must be located. A system for this purpose is in force in the larger centres of population. The source is usually found to be in a house of prostitution. The system also endeavours to locate clandestine and segregated prostitutes.

The information concerning the location of prostitutes may be obtained through the clinics, from individuals, from special committees, or from the police. When a house of a prostitute is located the procedure is somewhat as follows:—

A police raid is made upon a house, all the inmates taken are brought before a magistrate. All are examined to determine whether or not there is evidence of a transmissible disease. The men who show no signs or symptoms are allowed to go, but are requested to report to the clinic at fixed intervals until the period of incubation of the disease is passed. The women are quarantined to await examination for infections, feeble-mindedness, &c. This examination determines whether they are to be kept in quarantine houses or detention homes established by the Department of Health, or whether they are to be placed in institutions for feeble-minded. In Pennsylvania, thirty-three detention homes have been established to accommodate the women removed from the streets and houses of prostitution during their examination and treatment.

The most baffling situation in these drives against prostitution and venereal disease is the difficulty of locating the prostitute, especially the clandestine prostitute.

This scheme of action includes careful inquiry from patients to ascertain, when possible, the source of infection, police aid in the location of prostitutes, the power to arrest men and women in a raided house of bad repute, and the power to detain and examine infected and suspected men and women, as well as an obligation of patients to be treated. In the above scheme prostitution is treated like an infectious disease, a justifiable basis of action. But the operation of such a scheme against men is almost necessarily more limited than against women; and it is doubtful whether a large measure of success can be secured by it. Attempts to secure compulsory examination of suspected persons in this country would be "up against" strong sentiment, which has had an important and beneficent history in humanising and moralising our views as to the prevention of venereal diseases; and, in short, I do not regard action on these lines as practicable or even desirable under present circumstances in this country, except in the direction of punishment of all persons frequenting a house of bad repute, irrespective of their condition as to infection.

Compulsory Segregation.

Action to minimise risk of spread of infection, compulsory when necessary, is taken systematically for acute infectious diseases; and similar action has been found practicable for certain cases of tuberculosis. Can it be applied effectively for syphilis? It would appear at first sight that persons imprisoned for crime and found to be suffering from venereal disease might legitimately be detained until free from infection, even though this meant longer detention than the term of legal imprisonment; but a study of the Report of the Royal Commission on Venereal Diseases (par. 178 *et seq.*) and of the evidence given before that Commission shows the difficulties in equity involved in the suggestion. In other countries such powers are stated to have been partially employed, as well as the power of compulsory examination of prisoners when suspected to be suffering from venereal disease. Experience of the use of these powers will be watched with interest tinctured with critical doubt. The Royal Commission recommended the compulsory detention of infectious venereal patients who had resorted to Poor-law infirmaries, but no practical action has been taken on these lines. This fact alone illustrates the difficulties associated with compulsory action in this terribly destructive but tantalisingly chronic disease.

The Prevention of Promiscuity.

After all, in asking for compulsory information as to cases of syphilis while failing to utilise a large share of the information we already possess, and in asking for powers of compulsory detention or treatment, or both, are we not unduly restricting our outlook on the problem of the prevention of this disease? For practical purposes it may be said that syphilis is spread only by means of promiscuous sex relationships. By promiscuity I mean the more or less casual relationships between men and prostitutes, or between men and so-called "amateurs." In the absence of promiscuity, syphilis would rapidly diminish, if not disappear, and with it would go a chief cause of premature old age and mortality. Syphilis and gonorrhœa are communicated almost exclusively by sexually immoral persons; and in the absence of promiscuity on the part of healthy persons infection would cease to spread. Promiscuity thus is essentially an insanitary act. From this point of view Dr. Helen Wilson's contention is sound. As I understand it, it is to the effect that the person who voluntarily exposes himself or herself knowingly, or through negligence to the danger of becoming infected, commits an offence against the public health which is only less than that of the associate who, knowing that he or she is infectious, runs the risk of communicating disease to another.

I know full well the weight of the contention that prostitution always has been and always will continue. That depends on public opinion, which has worked miracles in changing moral habits in other directions, and on public policy, which can be so directed as to reduce prostitution very greatly, and to make early marriages easier and more general. It depends also on the degree of success of the educational propaganda which forms an essential part of every official venereal disease scheme, and on the wisdom with which this educational work is conducted. But it depends more than on these: on the building up of national character, on a change in the ideals of the mass of the people which will make it "bad form" to be sexually loose, will gradually establish an equal standard of sexual morality for the two sexes, and will change and extend our national system of education, so that it will no longer be in the main intellectual, but will train the emotions of youth, will cultivate right habits and thus educate the powers of inhibition before the hour of temptation to promiscuity arrives, and will thus ensure in future generations greater sanctity for family life and a deeper sense of responsibility for the health of partner and children.

With the growth of such ideals the necessity for compulsion in public health work or in other aspects of life will wane. I do not say that meanwhile compulsion has no rôle to play. Compulsion to the extent of entire prohibition of alcoholic drinks is being tried in America, and it will, I believe, succeed, notwith-

standing formidable difficulties. It is justified by the freedom from the thraldom of alcoholism which it is securing for many thousands of men and women whose will-power had gone; and the voluntary sacrifice made by the majority of their freedom to indulge in a pleasant habit of minor narcotism, as well as the unwilling sacrifice of this freedom by a minority of the people, is a small price to pay for the diminished crime and disease, the lessened destitution, the increased industrial efficiency, the immense enhancement of national wealth and welfare which are being secured by prohibition.

If any practicable form of compulsion for the diminution of venereal infection can be applied which acts impartially on all concerned—including the healthy person indulging in promiscuous sexual relations, as being inimical to civilised life—then let us try it. I put aside the general teaching of chemical prophylaxis. It can only be effective in a fraction of cases; furthermore, non-personal and indiscriminate instruction of this kind will, in my view, increase the amount of promiscuity, which is the real enemy to be fought.

The Issues Involved in the Problem.

We must not lose our view of the final issues involved. To be successful, civilised life in communities necessitates a steady, though it may be slow, change and advance in the standards of morality. It necessarily involves partial suppression of our over-sexed instincts and a stricter adherence to the monogamy which civilised family life implies. To affirm that no progress in this direction has hitherto been made is to state a dubious proposition, and partial failure in the past does not condemn to futility psychologically better directed and more intelligent efforts now within our reach. To attempt to adumbrate the possibilities of improved ethical training, based largely on the important additions to our knowledge of psychology made in recent years, would be beyond the scope of this address. This is more properly the task of the pedagogue inspired by high ideals and by an accurate knowledge of child psychology, and of parents who realise the extent of their responsibility and of their power to educate their children to resist venereal or any other form of moral infection.

Our knowledge of the processes by which habits of self-control can be initiated and fortified, and by which the social instinct can be made to restrain and in large measure to sublimate the sex-instinct—as well as of the possibilities of forming and directing public opinion towards higher ideals—goes far to confirm the opinion that the victory over venereal diseases will be gained chiefly on the ethical plane, and that on this plane we can—possibly earlier than appears likely—achieve success. Although moral progress is slow and gradual, the rate of progress tends to become accelerated at each step, so that in the end vast masses accept a new truth in a short time.

These remarks have important bearing on the relative utility of education and compulsion. By education, obviously, I do not mean the intellectual instruction which so far has been the main result of national educational effort, but the systematisation, from the earliest age of each child, of efforts in the training of character and the development of self-control through example and training. Knowledge is necessary, but in practical life it is attitude more than knowledge that counts. The real failure in life consists in the shirking of the discipline of self-control. The exercise of compulsion runs some risk of atrophying self-control; but it may be a means of training in self-control when it operates chiefly against those who cannot or will not exercise will-power. Indeed, the two ideals of compulsion and of education of character are not irreconcilable in public health work. In the sequence of national life the policeman preceded the school-teacher, but the success of the teacher will render the policeman less and less necessary if intelligent and conscientious parents enter into co-partnership in the task of education of character.

One word of warning is needed in conclusion. Compulsion in respect of venereal diseases must be in a form which can be applied fairly and equally against all offenders, including those guilty of the insanitary and anti-social act of promiscuity; and in any attempt at compulsion officially applied we must, above all, avoid the risk of dividing the army of fighters for health into camps warring against each other instead of against the common enemy.

RESTRICTION OF BIRTH IN RELATION TO NATIONAL WEAL.

BY JOHN BROWNLEE, M.D., D.Sc.

(National Institute for Medical Research.)

THE recent congress of the Neo-Malthusians [1] suggests some remarks. The subject will be discussed apart from morality, for although I believe that the moral aspect of the question is as important as the scientific, the former does not concern a medical journal. It is generally admitted that this country, if not over-populated as a manufacturing centre, is at least as fully populated as is consistent with safety. What the future of modern civilisation will be no one can tell. It would seem, however, that all European countries must tend to have a stationary population. This, however, does not mean that the births in these islands may not considerably exceed the deaths. At the present moment there are vast areas in the Empire which await population, and it is admitted that the mixture of races in the British Isles is one of the best suited to colonise and develop new countries.

The first question which arises in considering measures of birth restriction is whether they are necessary—that is, whether the population is at present increasing. I have recently shown that the births in the years immediately prior to the war, the survivors of whom were in 1921 7 to 12 years of age, were no more than those necessary for a stationary population, as the number of individuals living at these ages in 1921 is approximately the same as the number living at the same ages in 1911. But it must be remembered that the number of mothers in the decade 1911–20 was larger than in the decade 1901–10, so that these children in 1921 represent a smaller fertility. Thus with the mortality in infancy and in youth obtaining in the years 1911 to 1920 there was a smaller population than might have been expected. This is the most recent information available, for the war intervened and dislocated the normal factors of social life.

The Effects of War on Birth and Marriage.

The effects of war on birth- and marriage-rates are interesting. In the Napoleonic wars peace was established twice, once in 1802 and afterwards in 1814 and 1815 (Table I.). The numbers of the registered

TABLE I.—*Number of Marriages and Baptisms or Births in England and Wales in Thousands.*

Year.	Marriages.	Baptisms.	Year.	Marriages.	Births.
1801	67	237	1913	287	882
1802	90	274	1914	294	880
1803	94	294	1915	361	815
1804	86	295	1916	280	786
1805	80	292	1917	259	668
			1918	287	663
1812	82	302	1919	369	692
1813	84	314	1920	380	958
1814	93	319	1921	147	849
1815	100	344		(half year)	
1816	92	330			
1817	88	332			

baptisms and marriages at these two epochs are given in the table. Peace was associated with a very large number of marriages. In the following year the number of births was very great. What happened in the past regarding marriage has happened again,

[1] THE LANCET, July 22nd, p. 195.

but the high birth-rates following the return of peace has in this case not been maintained. The number of births in the year 1921, as is seen by the table, is very much less than in the year 1920, and it seems to be settling to a lower level. The birth-rate in 1921, however, though the lowest experienced in England, is not lower than pre-war Scottish birth-rates, yet that nation has not hitherto failed to maintain its importance.

The numbers required for a stationary population can be calculated by means of the life-tables constructed for 1910–12. I have shown that the health condition in the three years to which these life-tables relate, have held through the last ten years. The only point in which there was any particular difference between the periods before and after 1911 relates to the infantile mortality. For the ten years 1901 to 1911 this averaged 109 per 1000 births; from 1911 to 1920 it averaged 83. Panegyrics in the daily press acclaim this reduction in infantile mortality from 109 to 83 as producing an immense reserve of infantile life. As a matter of fact, the fall in the mortality makes very little difference. It is only a reduction of 2·6 per cent. in the saving of life and not the apparent reduction of 26 per cent. When the figures are stated, as they usually are, as a rate per thousand, the decrease is apparently very great. The rates, however, should be expressed, not as per thousand, but as per unit—thus 0·0109 and 0·0083. When the death-rates are thus expressed it is evident that the saving of life is trivial. For the maintenance of a stationary population of 37,000,000 the necessary number of births is, in the first instance, 675,300, and in the second case, 656,000; in fact, reductions in the infantile mortality are of very little importance as regards the future of the race. This may be a surprising conclusion, but any person with a pencil and paper can prove it correct in ten minutes.

What is wanted is not yet clear: the qualities of a stationary population must first be examined.

The Requisites of a Constant Population.

A stationary population is defined as one in which the hygienic conditions and the fertility are such that the number of births is equal to the number of deaths in each year, which also implies that an equal number of persons advance into each age-period at successive equal intervals of time. These relationships of the number living at different ages in a constant population constitute the essential data of what is known as a life-table. A comparison between the actual and the life-table populations for the years 1910–1912 is given in the accompanying table (Table II.). The figures are given for both males and females for ten-yearly age-periods. In the first column the population is given as enumerated: in the second column the numbers of the stationary population at each age-period, these being the numbers who would be found living if the births equalled the deaths. The points to be noted are that above the ages of 65 years the life-table populations, both male and female, are exactly double the number of the populations obtained in the Census, while the number living below 15 years is about 22 per cent. less. The period of life at which the numbers living, both males and females, are approximately equal is between the ages of 30 and 40 years. The expenditure on old age pensions will thus, if the birth-rate becomes equal to the death-rate, double itself, while at the vigorous ages of life—20 to 35 years—more work will require to be done per person to maintain the same standard of life.

The next point to be considered is the number of births which are required to maintain a constant population. Taking the population of the country as 37,000,000 this is found from the life-table of 1910-12 to be 675,300. Assuming the numbers of the married in each age-group in the life-table popula-

TABLE II.—*Showing the Actual Population in 1911 and the Corresponding Number in a Stationary Population with the Same Health Conditions, in Thousands.*

Age.	Males.		Females.	
	Actual.	Calculated.	Actual.	Calculated.
0–10	3783	2837	3768	2896
10–20	3403	2724	3434	2784
20–30	2958	2637	3296	2705
30–40	2637	2511	2853	2595
40–50	2001	2314	2157	2428
50–60	1376	1990	1505	2162
60–70	843	1466	984	1711
70–80	364	764	499	1010
80–90	75	189	120	305
90–	4·3	13·2	9·1	29·4

tion to be proportional to those in 1911 and the fertility to be the same, the life-table population gives 787,800 births, or more than 100,000 per year to the good. The female fertility has, however, not remained at this level. So far as can be judged at present, although this is open to some error in estimation, the fertility is considerably less in 1921 than in 1911. There is a fall from the 1911 standard to that of 1921 of at least 50,000 births per year, and I am sure, though it will not be possible to decide for some time, that the fall has been considerably greater. The excess of the births beyond that required in a stationary population of 37,000,000 is thus approximately less than 50,000 a year.

TABLE III.—*Population of Married Women at Fertile Ages at each Census, 1861–1911, in Hundreds, with the Number of Expected Children, using Körösi's Fertility Factors, and the Average Actual Number of Births for the Three Years, of which the Census is the Mid-year.*

Age.	Fertility factor.*	1861.	1871.	1881.	1891.	1901.	1911.
15–20	51·8	297	346	324	289	254	201
20–25	45·1	3,212	3,613	4,020	4,144	4,479	4,041
25–35	34·1	10,392	11,831	13,438	14,937	17,810	19,734
35–45	20·1	9,285	10,118	11,649	13,066	15,496	18,898
Calculated number of births		700,675	788,652	889,328	972,495	1,132,394	1,243,548
Actual average number of legitimate births		653,355	760,615	841,827	855,759	895,897	846,347
Ratio		0·93	0·96	0·95	0·88	0·79	0·68
Fertility taking 1861 as 100		100	103	102	95	85	73

* The fertility represents the number of children expected in one year from 100 wedded couples, of which the wife is at specified age.

The Relation of Fertility to the Change of Age at Marriage.

The factors which tend to lower fertility must now be considered. The alteration of the age at marriage may affect it. The statistics here are very defective, and it is not until the year 1891 that the number of women who refused to give their ages at marriage became small, the percentage in the year 1881 still remaining as high as 25 per cent. It is obviously quite impossible in these circumstances to distribute the ages of those who have refused to give their age in the proportion of those who give their ages, because those who refuse will tend to be elderly. From 1891, however, fairly complete statistics are available. The percentage of persons marrying each year at various age-groups has been calculated by taking the average number of spinsters marrying for the three years centring in the Census year and taking the ratio of

this number to the number of spinsters at the same age in the Census year. Marriages under 25 years have steadily declined; marriages between 25 and 35 have perhaps held their own; marriages at other ages have varied in no very definite manner: on the whole, however, there are fewer marriages in the later than in the earlier period. The difference, however, is not very great, and if Körösi's figures of fertility may be taken as sound, as will be seen is the case, the change of age at marriage would only give rise to a decrease of 3 per cent. in the birth-rate, whereas the decline of fertility, as we shall see, is more than 27 per cent. The later age at marriage, therefore, is not a factor of any importance in decreasing the number of births.

Change in Fertility.

The manner in which the fertility of the married women between the ages of 15 and 45 has varied since 1860 will now be discussed. These changes can be very fairly estimated, though the number of births registered in the neighbourhood of the Census of 1861 is probably in defect of the actual number of births which occurred. In spite of this defect, however, I take the figures of the Registrar-General in the years in the neighbourhood of 1861 as the standard. The method of Sir Arthur Newsholme and Dr. T. H. C. Stevenson for calculating the fertility is applied. In this method the fertility rates at each group of ages among married women, as given by Körösi, are applied to the numbers of married women in these groups of ages during the epoch in question. The ratio of these rates to one another (after much work in this subject in different regions of Great Britain) represent, I think, very closely the relative fertilities at different ages. The birth-rates as investigated are calculated from the average number of legitimate births in the three years with the Census year as the mid-year from 1861 to 1911. It is found that if the fertility of 1861 be taken as the datum line and denoted by a hundred, that the fertility around 1871 is represented by 103; that around 1881 by 102, and that thenceforth the decline is continual until in 1911 it has fallen to 73. Now I have held and still hold that a large part of this fall in fertility is due to race physiology. The idea of race physiology is not in favour at the present moment, largely, I think, because of the neglect by physiologists of the larger aspects of life. In view of the great number of races and empires which have risen and fallen in history, the question as to whether there is a race physiology seems at least worthy of consideration. It has been advanced from the time of Aristotle, who says it is a law of nature that great men come in groups. The effect of deliberate restriction of the birth-rate must be admitted, however, to be of increasing importance, but I feel inclined also to consider this an aspect of race physiology; the refusal of responsibility is a mark of the decline in the vitality of the individual. The tendency to interfere with the processes of nature seems to recur at intervals in the history of society. The same neglect of the maintenance of the family is one of the charges of the Roman satirists of the empire, a change which was coincident with the decay of the empire, and to which it must be held to have had some relation.

The Physiological Aspect.

We now go from the statistical to the physiological aspect of the matter. On this I do not feel that I possess the kind of knowledge to enable me to dogmatise, but within the range of my own observation and from conversation with many medical friends I have seen and heard sufficient to render some things probable. When a young married couple deliberately for a number of years avoid having children, it is often found that if later the desire to have children arise, the capacity to procreate no longer exists. This position has been met by saying that the first pregnancy should never be postponed. With that statement I am in complete agreement, but at present the first pregnancy is in far too many cases among the middle classes postponed. Further, if family life is to exist with true social intercourse there should not be too much difference between the ages of the children. I can quite well understand parents limiting their family to three or four children, but in that case the interval between the children would be preferably 18 months. The ideal that a woman should bear children at long intervals during 15 or 20 years is to me socially wrong. An only child is an admitted anomaly. Colonel Martin Flack, moreover, who has large experience in selecting the flying men for the Air Force, concurs in this; he tells me that the only child is hardly ever of use for flying. Children born at intervals of four or five years, however, are practically "only" children and in place of one anomaly several are produced. That, however, this intermittent kind of fertility exists is a pure assumption. It is highly improbable that parents who considered the production of such multiple anomalies desirable would receive any encouragement from nature.

NIGHT SWEATS:

THEIR SIGNIFICANCE AND PREVENTION.

BY MARCUS PATERSON, M.D. DURH., M.R.C.S. ENG.,

MEDICAL SUPERINTENDENT, COLINDALE (M.A.B.) HOSPITAL, HENDON, LONDON, N.W. 9.

I HAVE used the term "night sweats" at the head of this article, as they are the ordinary words employed to designate the symptom about which I am writing. They ought not to be called night, but slumber sweats, as the condition which brings them about occurs not only at night, but also during a morning nap or an afternoon siesta. As a medical student I was brought up to understand that slumber sweats in adults were diagnostic of pulmonary tuberculosis, and from my experience since then I think that the great majority of our profession still adhere to this view. It is not surprising that such a creed prevails to-day, when the medical dictionaries thus define this symptom:—Dorland: "Night sweats, a symptom of phthisis"; Lippincott: "Night sweats, as in phthisis and hectic fever," hectic fever being exemplified in the same dictionary as "peculiar to consumption." Lauder Brunton apparently held similar views, as he endeavoured to explain the origin of the sweats as being due to the exhaustion of the respiratory centre in the medulla, and the consequential accumulation of carbonic acid in the blood, which condition he contended stimulated in turn the sweat centre. As evidence for this view he pointed out that the "remedies for night sweats are respiratory stimulants."

As a matter of fact, there is no proof that the respiratory centre has anything to do with these sweats, and all the evidence is against this statement. Not only do they occur in early cases of pulmonary tuberculosis, when there is no suspicion of dyspnœa and no excess of "carbonic acid in the blood," but they occur at a period of the disease when dyspnœa is not present, whilst the patient is in bed, and they disappear when dyspnœa is observable. Moreover, they occur in other diseases, such as rickets and Malta fever.

Night Sweats in Malta Fever.

Staff-Surgeon C. C. Godding, R.N., writing in 1891[1] on an analysis of 42 cases of Malta fever, refers to the profuse night sweats as one of the symptoms of the disease. He also makes the interesting statement that Malta fever was known at that time as "sweating fever." The text-books do not, as far as I am aware, associate this symptom of Malta fever with slumber. Dyspnœa is not one of the usual symptoms of Malta fever; slumber sweats do constitute a usual symptom. Slumber sweats are not usually associated with the intense dyspnœa of advanced emphysema and heart disease, neither are they prevalent during the acute dyspnœa of a spon-

[1] Brit. Med. Jour., 1891, i., 1065.

taneous pneumothorax or of an acute pleural effusion. The fact is that in an uncomplicated case of advanced pulmonary tuberculosis, dyspnœa, whilst a patient is in bed, is very uncommon, except just prior to the terminal event, and even then the orthopnœa of pneumonia is practically never observed. And as it will be stated later, the sweats do not occur for three weeks before death—i.e., when dyspnœa is present. Slumber sweats should not therefore suggest a respiratory disease, but should be associated with microbic action—i.e., toxæmia.

Night Sweats in Pulmonary Tuberculosis.

The sweats in Malta fever occur with the onset of the acute attack, and as the patient recovers they cease. In pulmonary tuberculosis they may occur quite early in the disease, even when no fever has been detected. As far as I am aware, little attention is paid to the sweats of early tuberculosis, for the reason that they practically always pass away without treatment. Indeed, many patients have sweats during the early days of their ailment without at the time mentioning the fact to their medical attendant. These sweats are, however, usually at their worst at a late period of the malady, when the patient is more or less febrile and confined to bed. It is well to emphasise here that they can occur when there is no fever and no dyspnœa. They do not occur when a patient is dying; they cease spontaneously without treatment about three weeks before death. By slumber sweats, sweats are meant that wet a patient's night attire, not slight sweats around the head and neck. The facts are therefore that these sweats:—1. Occur during the early stages of pulmonary tuberculosis, and pass almost unnoticed. 2. That they are very severe, and have been difficult to treat at a late period of the disease. 3. That they are not present for about three weeks before death.

Slumber Sweats the Result of Auto-inoculation.

For these reasons I have come to the conclusion that these sweats are indicative of activity in pulmonary tuberculosis—i.e., auto-inoculations are taking place. In the early case, with presumably good resistance, the immunity is increased and a condition of balance is reached. In the advanced case the auto-inoculations are too severe and swamp all immunising responses. In the case of the dying man his resistance has disappeared and no immunising is possible. Auto-inoculations, as is well known, take place without any accompanying slumber sweats, it appears therefore to be probable that they only occur when a very great stimulus has been given to the production of antibodies, owing to the very large amount of bacterial products that have entered the blood, and it is quite possible that the inciting cause is the actual presence of bacilli in the blood.

To put the idea in the fewest possible words, a slumber sweat is indicative of a severe fight between bacterial products and antibodies. The facts that they occur in the early period of the disease and are of a very transient nature because of the higher immunity of the individual, and that in the later stages they are of longer duration because of the lowered immunity and the consequential breaking of the resistance of the body, very strongly supports the view which I have enunciated. This is corroborated by the fact that they cease in the last three weeks of the patient's life.

As has been stated elsewhere,[2] we have no simple test for discerning whether a patient has or has not active disease. To make this quite clear let me cite an example. A patient presents himself for examination for life insurance. On examination he is found to have dullness and a few crepitations at one apex and tubercle bacilli in his sputum, and to be free from fever. Is this an *active* case which therefore requires treatment, and the consequential enormous expenditure of time and money, or is it an arrested case which does not require treatment? To reiterate, we have at present no simple test for ascertaining this extraordinarily important fact in an early case of pulmonary tuberculosis without fever. If therefore this theory prove correct, it will give a simple method of detecting active tuberculosis in the first stage of the disease—i.e., slumber sweats plus tubercle bacilli in sputum equals active tuberculosis. On making careful inquiry into the history of slumber sweats, it will be found that they are of a very much more frequent occurrence than is generally supposed. These sweats therefore, in a recent case of tuberculosis should indicate not only the necessity of immediate treatment (of the disease, not of the symptom), but of the need for absolute rest.

I have failed to find any very helpful reading in the literature on night sweats, as practically all references relate to their treatment by drugs. How useless the various forms of treatment have been may be inferred from the eulogies of the very numerous drugs which have been recommended, not one of which is a specific like, for instance, salvarsan. I have already[3] recorded how common and severe were the night sweats when I first went to Brompton Hospital, and how with the advent of open windows they became much less frequent and severe. I can still remember how Sir James Fowler, before the days of open windows, used to smile at my efforts to control, by the use of many of the drugs mentioned in the pharmacopœia, the sweats of his patients, until one day he told me that I was only following the example of all my predecessors, with similar results.

Mechanical Factor of Production of the Sweats.

No medical man without practical experience of slumber sweats can appreciate what a terrible thing it is to suffer from them. I had treated hundreds of cases, but did not realise this myself until some few years ago the *Micrococcus melitensis* took possession of my body; I then endured agonies from such sweats, so that I did everything I could to refrain from slumber—of course, without avail—and I would wake even after a brief sleep absolutely wet through. Under such circumstances, it can be readily understood, my brain was not functioning at its best; but I did observe that the reason one sweated was because one lay still with one part of the body in contact for a long period with the mattress, and it was this that acted as a compress or poultice. This idea brought back to my memory the many tropical nights, spent in the service of the P. & O. Company, when I had slept in comfort on a grass mat over the mattress, and under the sheet. Fortunately, I had brought one home, and from the moment one was arranged on my bed the sweats disappeared. When a person is awake and there is a feeling of heat and sweating around any part of the body in contact with his bed, he moves on to another part of his body automatically, and so he does not break out into a profuse sweat, because he is frequently moving. When he falls asleep one part of the body remains in contact with the bed, because he is immobile, and so the slumber sweat is produced. We have now at Colindale (where we have many severe cases of slumber sweats) been using similar mats for many months, and the results fully confirm my own personal experience. The only case in which after several nights' use I have known a mat fail to cure the sweating was relieved by taking away the mattress and placing the patient on a piece of canvas stretched between the head and foot of the bed. Whatever therefore be the factor, to be referred to in a moment, in the body that makes a slumber sweat possible, the actual production is the mechanical contact of the body with the mattress. To understand this, it is only necessary to sleep on a mat during a hot night, when all the heat and discomfort caused by a mattress will disappear.

Movement of Air to Counteract Insufficient Loss of Heat.

To consider the factor in the body that causes these sweats, the primary stimulus to the "sweat centre" is obviously insufficient "loss of heat," and this has been

[2] Auto-inoculation in Pulmonary Tuberculosis, p. 215.

[3] The Shibboleths of Tuberculosis, p. 134.

shown by Leonard Hill to be rectified by movement of air. Hence the opening of windows diminish slumber sweats and the mats permit of the insulation of the body from the mattress which conserves the heat. The sweats may therefore be due to the toxins in the blood after an auto-inoculation stimulating the sympathetic, which is, as shown by Langley to be so, closely associated with the sweat glands, and so causing the sweats. The sequence of events being as follows: (1) patient lying still in bed because of toxæmia and feeling "rotten," and consequential deficient aeration of body; (2) heat loss therefore small; (3) smaller loss of toxin, because sweat evaporation is less than usual; (4) accumulation of toxin in body; and (5) stimulation of sympathetic and causation of excessive sweats. This theory supports the view already enunciated, as to why sweats do not occur in all cases where bacteria and their products are present in the blood-stream. The sweats only occur when there is a great amount of toxin in the blood. Obviously the more the toxin the quieter the patient.

Many imported mats have patterns worked on them; these kinds should be avoided because they leave a pattern on the skin and so cause discomfort. It should not be overlooked that these mats are chiefly used when a patient is in an advanced state of tuberculosis, and is very thin, and his skin very sensitive and liable to bed sores, so that the grass or straw must be fine. Probably a panama straw mat would be the ideal article for anyone who objects to the "hardness" of a Japanese mat. Patients sometimes disapprove of the mats at first because they feel hard; if such a criticism is raised, the mattress is often at fault. It should therefore be seen to, before ordering a mat, that the patient has a comfortable mattress. Once a patient is at ease on a mat it gives him relief almost at once. Mats will *not* prevent sweats if the patient is over-clothed either by personal or bed clothes, and before its use these matters should be gone into in detail. Neither will mats stop the sweats caused by the contact of the neck and head with the pillow; but these are not what is meant by slumber sweats. Messrs. Mayer and Phelps, of New Cavendish-street, stock suitable mats.

Summary.

1. Night sweats should be called slumber sweats, as they do not occur except when a person sleeps.
2. In early stages of pulmonary tuberculosis, and in the absence of any other infection, they are often the one indication of *active* tuberculosis.
3. Slumber sweats cease some weeks before death, because the patient's resistance has been overcome.
4. Slumber sweats can in nearly all cases be prevented without drugs by sleeping on a grass mat over the mattress.
5. Sleeping without a mattress on canvas will stop sweats.
6. The sweats are due to the presence of bacterial products (toxins) in the blood (in large quantities); they can therefore occur in any bacterial disease, and are not in consequence in any way diagnostic of pulmonary tuberculosis.

THE CALCIUM AND INORGANIC PHOSPHORUS CONTENT OF THE MATERNAL BLOOD DURING PREGNANCY AND LACTATION.

BY O. L. V. DE WESSELOW, M.B. OXF., F.R.C.P. LOND.,
CHEMICAL PATHOLOGIST TO ST. THOMAS'S HOSPITAL.

(*A Report to the Medical Research Council.*)

THOUGH a considerable number of observations are available on the calcium and phosphorus balance in pregnancy, comparatively little attention has been devoted to the content of the maternal blood in these elements. The demand for calcium is indicated by the fact that, according to Söldner,[1] the fœtus contains at birth 20·4 g. of this element, while the intake of an ordinary diet amounts to 0·74 g. per diem[2]; in addition calcium is, of course, needed for the construction of the new-formed maternal tissues. Similar considerations apply to the phosphorus metabolism during pregnancy. The same conditions are also operative during lactation, when the parasitism of the fœtus is replaced by that of the sucking infant. It is therefore of some interest to determine how far the demand for these elements affects the calcium and inorganic phosphorus content of the maternal blood.

Methods.—The calcium was estimated in serum by the direct precipitation method of Kramer and Tisdall.[3] All determinations were made in duplicate, and showed a satisfactory agreement. The inorganic phosphate was determined by Lehman's modification of the Bell-Doisy method.[4] Oxalated plasma, spun out as soon as possible after the blood had been drawn, was used for this determination in preference to serum, since Howland and Kramer have shown that the phosphate content of serum standing in contact with the clot tends to rise, owing to the large amount of phosphate present in red blood corpuscles. For the amounts of oxalate used, and for the modification of the original method employed, the criticism of Denis and von Meysenburg,[5] who find that excess of oxalate seriously affects the ultimate readings, does not apparently hold. In the majority of cases the solids of the serum were also determined.

Since it was impossible to obtain patients in a fasting condition, all blood samples were taken between 11 A.M. and noon, to obviate as far as possible the effect of food upon the phosphate readings. As controls healthy female out-patients between the ages of 20 and 40 were used. The results are given in the table.

Normals.—The figures for the normals call for no comment. The inorganic phosphorus content shows a close agreement with the figures given by McKellips, de Young, and Bloor,[6] who, using the nephelometric method, found an average value in the plasma of fasting adults of 3·1 mg. inorganic phosphorus per 100 c.cm., with an extreme range of 2·2 to 4·3 mg. The calcium figures fall within the usually accepted limits. Very few estimations of the solids of serum are apparently available, but Schmidt[7] found 9·2 per cent. in human serum, and Hammarsten[8] states that the solids vary from 6·7 to 9·7 per cent.

TABLE SHOWING CALCIUM AND PHOSPHORUS CONTENT OF MATERNAL BLOOD.

Description of case.	No. of cases.	Inorganic phosphorus as mgs. P per 100 c.cm.		Calcium mgs. per 100 c.cm.		Total solids per cent.	
		Average.	Extremes.	Average.	Extremes.	Average.	Extremes.
Normal controls	17	2·99	2·15–3·98	9·9	9·3–10·5	9·48	9·07–9·91
Pregnancy—							
2½–5 months	10	3·12	2·26–3·71	9·5	9·1–10·1	9·41	8·43–9·87
6th and 7th month	9	2·76	2·22–3·43	9·1	8·7–9·8	9·03	8·48–9·96
8th and 9th month	13	2·72	2·20–3·15	9·4	8·9–10·2	8·74	8·46–9·36
Lactation—							
3rd–11th day	9	3·72	2·95–4·25	9·8	9·3–10·2	8·85	8·73–8·96
7th week to 14th month ..	13	3·56	3·06–4·97	9·8	8·6–10·4	9·33	8·97–9·84

Pregnancy and Lactation.—Speaking broadly, there appears to be a tendency to a fall in the inorganic phosphorus, calcium, and total solids of the serum during the later months of pregnancy, while during lactation the calcium and total solids are restored to a normal figure, and the phosphates rise to a figure definitely above that of the non-lactating female. Exceptions to this rule are not infrequent. The most constant finding was the relatively high content of the plasma of the lactating female in inorganic phosphorus. Meigs, Blatherwick, and Carey,[9] investigating the plasma of the cow, found no appreciable difference in calcium content during pregnancy and lactation. Their work was, however, limited to a few animals. Kehrer[10] who has published what is probably the most complete study of the subject, estimated the calcium of the whole blood by an ashing method. He found a definitely low value for calcium in the later months of pregnancy, the blood of the pregnant woman averaging 6·6 mg. per 100 c.cm., as compared with 7 mg. in the non-pregnant. The calcium remained at the same low figure during the puerperium. The estimation of calcium in the whole blood is, however, undesirable, since the element is unevenly distributed between plasma and corpuscles, and hæmatocrit determinations of the relative corpuscular volume are therefore needed. In my own cases of pregnancy there is a definite tendency to a low calcium content, most marked in the sixth and seventh months, but the average value remains practically within physiological limits. The demand for calcium for fœtal needs does not therefore lead to any definite depletion of the maternal blood, any deficiency being probably met from the large reserve present in the osseous system of the mother. After delivery the calcium value returns rapidly to a normal figure.

The plasma phosphates have not, as far as I am aware, been investigated in the human being during pregnancy and lactation. Meigs and his collaborators find that, in the cow, the phosphorus content of the plasma tends to fall towards the end of pregnancy; this tendency is largely independent of the rations, and shows itself most constantly in the inorganic phosphorus. A similar tendency is apparently present in the human female. The high average content of inorganic phosphate during lactation is noteworthy; in only one of 22 cases investigated did the phosphate value fall below 3 mg. per 100 c.cm. The explanation of this phenomenon is uncertain. Meigs, Blatherwick, and Carey, from a study of the inorganic and lipoid phosphorus of the blood of the cow's mammary and jugular veins, conclude that the milk fat is derived from the plasma lipoids, the phosphorus being returned to the blood in inorganic form. They believe that a similar process occurs in striated muscle, but there is evidence that the production of phosphoric acid in muscle is accompanied by the liberation of an equimolecular amount of lactic acid, both being derived from a hexose phosphate.

An experiment made by these authors upon a milking cow suggests that there is a much closer parallelism between the milk yield and the inorganic phosphate of the plasma than between milk yield and lipoid phosphorus, a marked fall in the yield of milk, as the result of reduced rations, being accompanied by a great diminution in the inorganic and a comparatively slight fall in the lipoid phosphorus. Sheehy[11] has found no relationship between the fat and inorganic phosphate content of the milk, which appears to be against Meig's hypothesis. In the only case of defective lactation (4¾ oz. per diem) which I have had the opportunity of investigating, the phosphates amounted to 3·7 mg. per 100 c.cm.—an average figure for lactation. The importance of an adequate supply of inorganic phosphate to the active mammary gland is obvious, when we consider the relatively high phosphate content of milk, and the importance of phosphates in the economy of the growing infant.

Lastly, the estimations of the total solids of serum strongly suggest a progressive dilution of the blood during pregnancy, the percentage of water increasing with the length of gestation.

References.—1. Zeitsch. f. Biol., 1903, 25. 2. Sherman: Jour. Biol. Chem., 1920, xliv., 21. 3. Ibid., 1921, xlvii., 475. 4. Ibid., 1920, xliv., 55. 5. Ibid., 1922, lii., 1. 6. Ibid., 1921, xlvii., 57. 7. Quoted from Bunge: Physiologic and Pathologic Chemistry, 1902. 8. Text-Book of Physiological Chemistry, 1915. 9. Jour. Biol. Chem., 1919, xxxvii., 1. 10. Arch. f. Gynäk., 1920, cxii., 487. 11. Bioch. Jour., 1921, xv., 703.

PRIMARY MALIGNANT GROWTH OF THE LIVER IN INFANTS:

WITH REPORT OF A RECENT CASE.

BY C. B. DANSIE, M.R.C.S. ENG.,
CHILDREN'S HOUSE PHYSICIAN, KING'S COLLEGE HOSPITAL.

PRIMARY malignant growth of the liver is a very rare condition, so rare, perhaps, that one does not entertain the idea until a case occurs. The condition may originate in the parenchyma of the liver or the bile-ducts. In the former the condition has been called "green cancer" on account of the colour of the tumours present in the liver. These are the results of the pressure from new formation causing obstruction of the bile-ducts and retention of the biliary fluid. Where the tumour originates from the bile-ducts the new growth is diffuse and infiltrates the whole of the liver, giving rise to a general and uniform enlargement. Some of the reported cases are designated sarcoma, and here I presume the tumour was seen to arise from the connective tissue lying between the liver cells.

In collecting reported cases of primary growth of the liver I have confined my numbers to those occurring in infants up to 2½ years. Altogether there are 23 cases. Of these the sex is given in 15—7 male and 8 female. The age occurrence shows the greatest frequency in the first 6 months of life.

Up to 6 months, 10 cases; 6 to 12 months, 5 cases; 12 to 18 months, 2 cases; 18 to 24 months, 3 cases; 24 to 30 months, 2 cases.

The impression gained from reading the reports is that in such a condition in infants jaundice and metastases are not the rule. The following table gives the sex and age of the cases, those marked by an asterisk being the cases which resemble more closely the one reported below.

Case.	Sex.	Age.	Reference.	Case.	Sex.	Age.	Reference.
1*	M.	6 w.	Dalton.	12	M.	28 m.	Freeman.
2*	M.	11 m.	Baumann and Forbes.	13	—	18 m.	Sotow.
3	—	—	Powell, White and Mair.	14	F	20 m.	Steffen.
				15	M.	9 m.	Phillipp.
4	—	3 w.	Parker.	16	F.	4 m.	Petronic.
5	—	14 w.	Hewlett.	17	F.	21 m.	Hippel.
6*	F.	8 w.	Heaton.	18	F.	5 w.	Langmead.
7*	—	8 w.	Pepper.	19	—	4 m.	Meisenbach.
8	F.	21 m.	Butler.	20*	—	4 m.	Lendrop.
9	M.	9 m.	Steffen.	21*	—	4 m.	de Hann.
10	M.	30 m.	Henoch.	22	F.	18 m.	Olivier.
11*	M.	8 m.	West.	23	F.	8 m.	Cornil.

w. = weeks; m. = months.

Description of Case.

A male infant, 10 weeks old, was admitted into Dr. G. F. Still's ward at King's College Hospital on Oct. 18th, 1921, on account of the increasing size of the abdomen.

Condition on Examination.—The condition was noticed quite casually at a children's clinic a fortnight before admittance. There had been no rash or snuffles at birth, no jaundice, and no hæmaturia. Wassermann reactions of both mother and child negative; the only abnormality about the child was the size of the abdomen, which measured at the level of the umbilicus 19 inches. On palpation a large mass with a definite edge was felt, filling the whole of the right side of the abdomen, stretching well below the right anterior superior spine and umbilicus and reaching across to the left flank. Spleen not palpable. There was evidence of fluid in the abdomen. Urine showed slight cloud of albumin and a few pus cells. X ray photograph showed

diaphragm abnormally high, with heart shadow increased in transverse diameter. Diagnosis—new growth of liver.

Course of Case.—Pressure symptoms gradually increased, and on Nov. 30th the abdomen measured 20½ inches. Abdominal wall œdematous, and breathing very distressed. On the same day Mr. T. P. Legg performed a laparotomy in order to relieve the pressure, but only about 6 oz. of clear fluid escaped. The incision exposed a mottled smooth mass, taken to be liver. The fluid contained albumin, hæmoglobin, a few white blood corpuscles and endothelial cells. On Dec. 7th temperature was elevated and the child gradually succumbed.

Autopsy.—The liver was generally enlarged in all directions and the surface was not perfectly smooth. It was mottled with purplish areas, especially in the lower part. These areas varied from a mere spot to about ¼ inch in diameter. The under-surface was irregular, giving the appearance of cirrhotic changes. It weighed 2 lb. 3¼ oz. There was no jaundice, no metastases, and the other organs were quite normal.

Microscopic examination showed groups of normal liver cells amongst masses of polymorphous tumour cells, throughout which blood was extravasated; between the groups of cells there was excess of fibrous tissue, as if secondary cirrhotic changes had taken place. In places the liver cells were atrophic and degenerating owing to the pressure of the tumour cells, the latter having insinuated themselves amongst the liver cells and parted them out into fine strands, producing here and there an irregular retiform disposition. In some spots the bile-ducts were stretched and compressed by the surrounding growth, but without showing any epithelial proliferation. Notwithstanding this, the tumour had doubtless originated in connexion with the bile-ducts, since the cells composing it nowhere resembled those of the liver parenchyma, nor was the growth of any green colour suggesting that the cells of the tumour were functioning. Some of the groups of cells had an open centre filled with uncoloured, finely vacuolated material, and the peripheral elements and the groups were furnished with oval nuclei set vertically to the tissue around. It was suggestive that the cells had arisen from the columnar epithelium of the ducts and had retained some of their property of forming mucin.

Prof. S. G. Shattock kindly examined the section, and pointed out the evidence showing the tumour to be fairly conclusively a duct carcinoma. I wish to thank Dr. Still for permission to report the case.

Bibliography.—Crozer-Griffith: Amer. Journal Med. Sci., 1918, clv., 79. Steffen: Die Malignen Geschwülste in Kindesalter, 1905, 77. Paul: Trans. Path. Soc. London, vol. xxxvi., 238. Dalton: Ibid., 247. Parker: Ibid., xxxi. Henoch: Lect. Diseases of Children, ii., 116. West: Diseases of Infancy and Childhood, 1874, 733. Baumann and Forbes: THE LANCET, 1904, i., 1503. Powell, White, and Mair: Ibid., 1907, i., 225. Freeman: Ibid., 1914, ii., 157. Hewlett: Ibid., 1900, i., 427. Heaton: Ibid., 1898, i., 645. Langmead: Proc. Roy. Soc. Med., vi., No. 2, 46. Parkes Weber: Ibid., iii., No. 6, 63. Byrom Bramwell and Leith: THE LANCET, 1897, i., 170.

A PERFORATED APPENDIX REMOVED AT SEA UNDER EXCEPTIONAL CONDITIONS.

BY HORACE E. R. STEPHENS, O.B.E., F.R.C.S. ENG.,
SURGEON-COMMANDER, R.N.

THE following incident occurred on board H.M.S. *Alacrity*, a yacht of 3000 tons, homeward bound from the China Station. On May 6th, at 6 P.M., she was 1013 miles from Colombo and 1087 miles from Aden, proceeding on a westerly course at a speed of 10 knots. The weather was calm.

On the date mentioned a stoker was brought up from the stokehold in a collapsed condition suffering from acute abdominal pain. This attack had arisen quite suddenly without previous warning of any kind. The symptoms and physical signs were severe and typical, if the latter epithet be permissible. In this case, at any rate, the diagnosis of a perforated appendix presented no difficulty. I was single-handed, and the problem suddenly confronting me appeared well-nigh insoluble; yet if no surgical measures were undertaken, it was clear the man would surely die; under the most favourable auspices he might reach Aden in a dying condition.

My first impulse prompted me to seek the help of another surgeon from a passing ship. During the night, positions were obtained by wireless telegraphy from two liners proceeding in a similar direction to ourselves. One was 280 miles astern; the other 230 miles ahead. However, I decided to remove the appendix myself early on the morning of May 7th, fully realising the danger of the operation.

The wardroom possessed an excellent table, good light, and ample ventilation through sash windows, and automatically became the operating theatre. With the assistance of my solitary sick-berth attendant our stock of instruments, ligatures, and dressings were sterilised; towels were boiled in the ship's galley, and the necessary lotions were made up to the required strength. Here it may be added that the instruments and dressings provided by the Admiralty for such a small ship as this amply fulfil all the requirements for any emergency operation. Rubber gloves and operating gowns were not available, but clean cricket flannels admirably served the purpose of the latter.

It has been asserted that there are only two real essentials for any surgical operation—viz., the patient and the surgeon—but practical considerations modify that aphorism very considerably. An anæsthetist and an assistant were sought and found. My sick-berth attendant could then supervise the instruments. The captain, Commander P. R. Stevens, D.S.O., R.N., offered his services as assistant, while the navigating officer, Lieutenant F. E. Chevallier, D.S.C., R.N., assumed the rôle of anæsthetist. Neither of these officers had experienced any kind of medical or surgical work previously, and their courage in such peculiar circumstances will be fully appreciated by all who read this account.

Fortunately, the ship was comparatively steady, riding easily over a long south-westerly swell. The temperature of the air was 83° F., the sea 80° F., and the wet-bulb thermometer registered 82° F. Having referred to the exceptional conditions which prevailed, the steps of this emergency operation may be briefly described. The patient, quite composed under the influence of morphia and atropine, was brought up from the sick bay below and placed on the table. I induced the anæsthesia, using equal parts of ether and chloroform on a Skinner's mask. When the patient was fully under, the navigating officer took charge while I sterilised my hands again.

McBurney's method of approach was chosen for reasons which need not be mentioned here, the rectus sheath being opened to give readier access and so save time. On dividing the peritoneum a small quantity of thin flaky pus escaped. After "packing off," the appendix itself was discovered lying in the 1 o'clock position along the inner side of the cæcum, being bound to the posterior abdominal wall by thin adhesions. On breaking these down the cæcum and appendix were delivered without difficulty. The bed where the appendix had lain was gently but thoroughly dried. The appendix itself was acutely inflamed, solid to the feel and bulbous at the tip where a small perforation was situated. Through the latter a stinking yellow pus appeared. At this juncture the zeal of the anæsthetist received a check owing to the patient commencing to breathe irregularly. More air was given and all was well again. After removing the appendix in the usual way, we experienced some delay in ligaturing the engorged mesenteric vessels satisfactorily. As this was the captain's first introduction to the mechanism of a Spencer Wells, it was not surprising. No further comment on the technique is needed. The time taken, including the induction of the anæsthetic, was 55 minutes.

When the appendix was examined afterwards, the perforated bulbous end contained a small quantity of foul pus. The lumen of the viscus was completely filled with four inches of a female *Ascaris lumbricoides*, as if the muscular coat held it in its grasp. In spite of being crushed in two by the forceps, the worm was very much alive; in the act of penetrating the intestinal wall she had been caught by the surgeon's forceps and divided into two. The remaining portion, which measured 6¼ inches, was recovered from the fæces quite dead.

Remarks.

It may be declared quite truthfully that the patient was fortunate to come through such an ordeal safely. Yet the large margin of risk incurred seems justified by the desperate nature of the case and the result achieved. By citing a solitary successful case I hope I shall not encourage others to undertake any operation at sea without very mature consideration. In this instance, had I not had an ideal patient, together with assistance from two officers with such pluck and common sense, and from an able sick-berth attendant, the result might have been very different. As it was, the stoker made a complete and uninterrupted recovery. In 1906 F. E. Anley suggested the possibility of such an occurrence, quoting several cases of appendicitis due to ascaris infection.[1]

[1] F. E. Anley: Brit. Med. Jour., 1906, i., 677.

Medical Societies.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION:

THE ANNUAL MEETING AT EDINBURGH.

(*Concluded from p. 179.*)

THE scientific proceedings of the Association were continued on Thursday, July 20th, in the Physiology Lecture Hall of the new University buildings, when an interesting symposium was held on the

Relations of Endocrinology to Mental Disease.[1]

The subject was introduced by Sir EDWARD SHARPEY SCHAFER, professor of physiology in the University, who gave a remarkably clear and, within its limits, exhaustive account of what is known, on physiological grounds, of the influence of the endocrine glands on the nervous system. That influence, he said, was exerted by means of chemical substances, "very few of which have been isolated or satisfactorily examined, though many of them closely resemble in their action that of medicaments, especially such drugs as the alkaloids." These specific chemical substances, which act upon or react with constituents of the cells, he defined as stimulating or decreasing excitability and activity—"hormones" or "chalones" (χαλάω = I restrain), but he pointed out that a general expression denoting their drug-like character was also required to describe all the specific principles contained in the internal secretions which promote changes in other organs, whether in the way of excitation or inhibition, and such an expression was appropriately found in the term "autacoid" (αὐτός = self, and ἄκος = a drug). By this terminology he was able to make his address perfectly clear. Since there are two principles of opposite character yielded by the internal secretions, in speaking of their action upon the nervous system he used the term "autacoid" as a general one to denote the active chemical agent of any secretion, and the special terms "hormone" and "chalone" to express the mode of action of particular autacoids according to whether this was excitatory or inhibitory.

He proceeded to consider first the influence of the internal secretion of the generative organs, as strikingly exemplified by the psychic changes which take place, along with the rapid development of the gonads, with the advent of puberty in both sexes, and by those which occur at the female climacteric; he quoted the experiments of Nussbaum on the frog as furnishing proof that the development of a secondary sexual characteristic is dependent on an internal secretion of the testis; and he showed where Brown-Séquard's pioneer experiments in the injection of organ extracts, at first generally discredited, were now receiving support. He concluded this section of his address by saying that probably "both the nervous system and the internal secretions take a share in the production of the results obtained, the effects being in each case due to alterations in the balance between activation and inhibition, both of which can be brought about either through nerves or through autacoid substances carried by the blood, and acting as chemical agents upon the cells."

Prof. Schafer then described the physiological action of thyroid, setting out the well-known manifestations of athyroidism and laying stress on the effect produced by the thyroid autacoid on the central nervous system. He described the results of administering thyroid extract—making allowance for dosage and idiosyncrasy—to the normal individual, and compared these results with those obtained by exciting sympathetic nerve fibres and those produced by adrenalin. An elaborate account followed of the physiological tests which have been devised to detect the presence of thyroid secretion in the circulating fluid, and, in conclusion, the lecturer dealt with the influence of the parathyroids when removal or destruction is attended with nervous symptoms. From all the evidence thus brought together, Prof. Schafer was able to show that much was known regarding the influence of the internal secretions upon the nervous system, although "it is evident that the extent of the unknown is vastly greater than the known."

Sir FREDERICK MOTT then gave a demonstration of his personal work in the investigation of the relationship of the reproductive and endocrine glands to mental disease, and Prof. GRAHAM BROWN followed with interesting clinical observations relating to the sympathetic and parasympathetic systems.

Dr. DAVID ORR read a paper upon the interaction of the endocrine, sympathetic, and central nervous systems in organismal toxæmia, making particular reference to emotional disturbance; and Dr. W. H. B. STODDART described the mental factor of some endocrinopathies.

An address was then delivered by Prof. J. C. MEAKINS upon the

Influence of Chemical Substances on the Endocrine Glands and Nervous System.

Prof. Meakins began by remarking that the general control of the activities of the animal organism, whether those of function or of structure, was of an extremely complex nature—in fact, the more one delved into the subject and the more facts which were obtained, the more difficult was it to see the way ahead. But there is, he went on, one point which now seems very clear, that the function of no one organ can be considered as an isolated phenomenon unto itself, but all the intimate and intricate coördinations which are so beautifully balanced in health must be considered in this light when we are dealing with disease. The influence of the endocrine glands on the chemistry of the body may be observed not only in normal function and structure, but also in the biological evolution of the individual. Probably in no sphere of the regulation of the organic function of the body is the influence of the endocrine glands so apparent as in regulating the general metabolism of the body. It is now quite apparent that the control of these chemical reactions depends in great part upon the influence of the thyroid gland, although the action of the other ductless glands plays an important but probably subsidiary part. It is interesting from a chemical point of view to inquire as to what substance or substances in the thyroid internal secretion control and influence this regulation of metabolism. Kendall isolated in a pure form a chemical substance which he found to be trihydrotriiodo-alpha-oxyindol-proprionic acid. This substance, when administered to animals, produces all the phenomena which are usually found on administering thyroid extract. It has been shown that the active principle of the suprarenal gland is also a definite chemical substance which has been isolated in crystalline form and has been identified as orthodioxyphenyl-ethylol-methylamine. These chemical substances are apparently produced by the thyroid and adrenals, and affect the nervous system and the general chemical economy of the body after a definite manner. But the supply of oxygen and removal of carbon dioxide also influence the action of certain of the endocrine glands, and the central nervous system. The diminution in the supply of oxygen has a very definite effect upon the central nervous system. The chief symptoms are headache, vomiting, mental confusion, restlessness, insomnia, and, if carried to an extreme degree, coma and death. It has been shown by Kellaway that asphyxia brings about an accelerated secretion of epinephrine, chiefly due to the lack of oxygen.

On the other hand, Prof. Meakins said, the importance of the proper balance of carbon dioxide in the

[1] The addresses will be published in full in the Journal of Mental Science.

body cannot be ignored. It has been shown by Dale and Evans that the excessive removal of carbon dioxide from the blood brings about a very prompt and dangerous fall in blood pressure which is due to depression of the vaso-motor centres of the bulb and the spinal cord. Furthermore, in man, forced over-ventilation may produce typical attacks of tetany, which are indistinguishable from those resulting from deficiency of the parathyroid secretions. It is well known that the introduction of certain chemical substances, such as nicotine, will bring about a great increase in the secretion of epinephrine, and other instances might also be cited. But apart from these artificially introduced chemical bodies, one would naturally inquire as to whether there is any evidence that there are formed in the body under normal or pathological conditions substances which may bring about a disturbance of the control of the central nervous system and of the endocrine glands. During the past two years it has been our endeavour to determine whether there be formed in the bowel, during the process of digestion, any chemical compounds which might be considered as toxic on the general organism. Under varying conditions the intestinal bacteria may exert different actions. If the habitat be anaerobic these bacteria have a more or less common property of splitting off the amino group from the protein molecule, but if the surroundings be aerobic the carboxyl group is first separated. It is of great practical importance whether this separation of the carboxyl group takes place after or before de-amidisation. If after, substances such as indol and phenol are formed which have little or no toxic properties. On the other hand, if the separation of the carboxyl group takes place before the amino group is split off very toxic substances such as histamine and tyramine are formed.

We were able, Prof. Meakins continued, to demonstrate the presence of histamine in six cases in the contents of the cæcum and transverse colon, but not in the fæces. We found that injection of considerable quantities of histamine into the ileum produced a very prompt effect upon the blood pressure, and in certain cases also upon the respiration and uterine contraction. Larger amounts injected into the colon produced little or no effect. After an Eck's fistula, however, no appreciable difference was noticeable between the action of histamine when introduced into the ileum or colon—shock-like fall of blood pressure being produced. Considering the large amounts of histamine which it was necessary to inject even into the ileum of the cat to produce any profound influence on the blood pressure, we do not consider that it is justifiable to draw conclusions from our experiments that histamine, if present in the concentrations which we were able to demonstrate, would exert any appreciable effect upon the central nervous system and other structures. Apart from any possible effect which chemical bodies formed in the intestine may have upon the organism as a whole, there is the very important question of food-stuffs and their being synthesised into living tissues. It is necessary to supply an irreducible minimum of specified atomic groupings or complexes of nitrogen, carbon, hydrogen, and so forth, which are not synthesisable by animal tissues. It is highly probable that many of the raw materials, from which the various internal secretions are synthesised, are dietary constituents of this type.

Prof. Meakins concluded: I have endeavoured to-day in a most cursory fashion to lay before you what seem to be certain very important lines to be followed if we are to eludicate these very complex questions. The whole study of the endocrine glands in recent years has made progress by enormous strides, but one cannot help being struck by the fact that through it all and over it all many theories have arisen which have simply confused the issue. It behoves us, in the future, to keep our vision closely fixed on the direct trail of scientific investigation, and not be drawn aside by the mirage of theory based on insufficient and oft-times negligible facts.

On Friday, July 21st, a discussion was opened on

Clinical Examination in Mental Cases,

when Dr. CHALMERS WATSON read a paper, the purport of which was to show the need for the routine clinical investigation of patients afflicted with mental disorder, the investigation being from the general standpoint of the physician, and not superseding the special neurological inquiries. The paper was prefaced on Thursday afternoon by a demonstration in which attention was drawn to certain results of X ray examination of the intestinal tract in mental disorders, and to the associated conditions of the urine and stools.

Routine Clinical Investigation: a Demonstration.

1. *X Rays.*—A series of radiograms were shown illustrating the conditions present in the intestinal tract, chiefly of the nature of stasis of the ileum and colon with proptosis, in cases of melancholia, epilepsy, and dementia præcox. Short clinical histories of the cases were furnished.

2. *The Urine.*—Attention was drawn to the frequency with which a cloudy state of the urine is encountered in cases of mental disorder, due to the presence of bacteria, frequently associated with cellular elements and oxaluria.

3. *The Stools.*—The evidence was set out—both naked-eye and stained microscopic films—of an unhealthy condition of the bowel not infrequently present in cases of mental disorder and believed by the demonstrator to have ætiological significance.

4. *Intestinal Flora.*—Attention was directed to recent observations on the intestinal flora with the use of a new culture-medium, as throwing additional light on the ætiology and treatment of mental disorders (see THE LANCET, July 15th, p. 127).

5. *The Blood.*—A series of blood-films were included in the demonstration.

Dr. Chalmers Watson, in his paper, detailed the cases of mental disorder which had been subjected to this routine, and indicated how their results formed an argument for the collective examination of such cases, to be made at all institutions where the opportunities offered. He indicated the valuable nature of the work that could be carried out by the employment of modern laboratory methods in association with the treatment of mental disorders.

Hospitality.

The annual dinner was held on Wednesday, July 19th, in the Hall of the Royal College of Physicians, when Prof. George Robertson presided over a large company of members of the Association and their guests, among whom were the distinguished Frenchmen in Edinburgh for the reception of honorary degrees. After the loyal toasts Dr. J. G. Soutar gave "The City of Edinburgh," to which the Lord Provost replied, and Dr. Hubert Bond gave "The University of Edinburgh," to which Principal Ewing responded. The toast of "The Boards of Control" was given wittily by Mr. J. G. Jameson, M.P., and replied to by Sir Hugh A. Rose and Sir Robert Armstrong-Jones, while the health of the President was proposed by Sir Robert Philip.

On Thursday a luncheon was given by Sir Hugh Rose, Chairman of the Board of Control for Scotland, at the University Union, and on the same evening the managers of the Royal Hospital, Morningside, gave an At Home at Craig House.

Motor drives were arranged by a Ladies' Committee for ladies accompanying members, and everything was done by those responsible for the meeting to render it successful socially as well as scientifically.

MINISTRY OF PENSIONS.—The Ministry of Pensions announce that disabled officers, nurses, and men, and the widows and dependents of those deceased, who desire to appeal to the Pensions Appeal Tribunal against the rejection of claims to pension, must do so, on the prescribed form, within a year after the date of the notification by the Ministry of the rejection of the claim, or before August 19th, 1922, whichever is the later. Any new claim to pension in respect of disablement under any warrant, Order in Council, or order, administered by the Minister of Pensions, must be made within seven years after the claimant was discharged, or before Sept. 1st, 1928, whichever is the earlier.

Reviews and Notices of Books.

TAYLOR'S PRACTICE OF MEDICINE.

Twelfth edition. By E. P. POULTON, M.A., M.D., F.R.C.P. Lond., Physician to Guy's Hospital. With the assistance of C. PUTNAM SYMONDS, M.A., M.D., M.R.C.P., Assistant Physician for Nervous Diseases, Guy's Hospital; and H. W. BARBER, M.A., M.B., F.R.C.P. Lond., Physician in charge of Skin Department, Guy's Hospital. London: J. and A. Churchill. 1922. Pp. 980. 30*s*.

Dr. E. P. Poulton and his collaborators are to be congratulated on their revision of this famous text-book; one can well credit the feeling of trepidation which Dr. Poulton tells us he experienced at the thought of following in the footsteps of such a leader. His success is the legitimate reward of daring. Without disturbing the essential nature of the book Dr. Poulton has managed to rearrange its contents and bring it into harmony with the latest conceptions of pathology. The section dealing with diseases of the nervous system has now been placed towards the end of the volume; a new section has been introduced dealing with diseases due to dietetic deficiencies, and diabetes mellitus is placed in its true position—with other diseases of the endocrine organs.

Each of the book's main sections contains much new or rewritten matter. Thus under infectious diseases we find good accounts of encephalitis lethargica and gas grangrene, and the articles on cerebro-spinal fever, acute poliomyelitis, tetanus, syphilis, and tuberculosis have been fully revised. Noguchi's work on the spirochæte of yellow fever and the relation of this disease to spirochætosis icterohæmorrhagica are adequately discussed and a note made of the treatment of leprosy by salts of fatty acids. The most notable change in the section dealing with diseases of the respiratory system is to be found in the article on asthma; the toxic idiopathies and anaphylaxis are discussed in detail, animal and foreign protein asthmas are described, and prominence is given to the value of adrenalin in treatment. In the section on cardiac disease the introductory portion on cardiac examination, always excellent, has been developed by fuller descriptions of the tests of cardiac efficiency, and the X ray appearance of the normal and abnormal heart. The treatment of auricular flutter by quinidine is noted. The close following of new laboratory methods of diagnosis in diseases of the digestive tract can be gathered from the fact that this edition contains matter dealing with fractional test-meals, and functional tests of hepatic and pancreatic efficiency, even the Van den Bergh test finding its way into the volume. New articles are devoted to aerophagy, cœliac disease, and diverticulitis, and those dealing with achylia gastrica and the X ray examination of the stomach have been largely revised. Dr. Poulton is particularly happy in his articles on diseases of metabolism, those concerned with basal metabolism and diabetes being especially learned; his description of ketosis marks a great advance in our knowledge. On the other hand, he has not perhaps given the diseases of the endocrine glands all the space which they merit, even in so wide a text-book as this. Without sharing the immoderate enthusiasm of some recent writers we feel that pluriglandular disorders are too common to be dismissed in a few lines.

Sir Frederick Taylor's manual was always remarkable for the excellence of that section which dealt with diseases of the nervous system and in the new edition the tradition is admirably maintained, Dr. Putnam Symonds contributing 200 well-illustrated pages which form an excellent epitome of the subject. The portions dealing with the examination of the cerebro-spinal fluid, mental analysis, the production of aphasia, and the pathology of parenchymatous syphilis of the nervous system are worthy of note for the tale of progress which they record. We hope that future editions may see progressive lenticular degeneration described under the title of "Wilson's disease," a name which is already in general use in France. Future research should also produce results which will enable the authors to speak more definitely as to the pathology of subacute combined degeneration. The section devoted to diseases of the skin has undergone similar careful revision by Dr. H. W. Barber. To write an unillustrated account of such a subject is a task from which many dermatologists would shrink; the writer has accomplished his work so well as to bring the features of the commoner skin affections clearly before his readers without pictures, and probably the consequent accentuation of the anatomical basis of each lesion is a gain to the student.

Considered as a whole the present edition is so excellent that there are only two main directions in which we hope that it may, in the future, undergo some modification. The first of these concerns the classification. In this and other recent works advances in pathology have led to such diseases as encephalitis lethargica, acute poliomyelitis, and spirochætosis ictero-hæmorrhagica being included amongst infectious diseases; amœbic dysentery is here included under this heading, whilst hydatid disease and bilharziasis are discussed in scattered paragraphs under diseases affecting various organs or systems. Some more logical arrangement should be made in future editions. Our second criticism concerns treatment. Dr. Poulton has rightly emphasised the prevention of disease, but where actual treatment is described it might be of advantage to the student or practitioner if greater stress were laid on those drugs and methods which have proved of vital significance in certain disorders. In some cases this is satisfactorily done, the accounts of the systematic treatment of syphilis by mercury and organic arsenic preparations, and the treatment of amœbic dysentery by emetine, being very full. But we doubt whether the description of the treatment of auricular fibrillation on p. 301 gives the reader sufficient idea of the respective values of strophanthin, digitalin, and digitoxin; the new treatment of leprosy deserves more than a few guarded statements; and the use of antimony tartrate in bilharziasis has passed beyond the experimental stage. Similarly it would be of great advantage if Dr. Poulton would sum up rather more clearly the indications for operative interference in many conditions; and without doubt he should, in the next edition, lay more emphasis on possibilities of treatment of sarcoma by radium and X rays.

It is the high general level of this work that has led us to make these suggestions, and we feel sure that for many years to come the revised "Taylor's Medicine" will enjoy the popularity it deserves.

SUGGESTION AND MENTAL ANALYSIS.

By WILLIAM BROWN, M.A., M.D. Oxon., D.Sc., M.R.C.P. Lond., Wilde Reader in Mental Philosophy in the University of Oxford. London: University of London Press. 1922. Pp. 165. 3*s*. 6*d*.

Dr. William Brown says in his preface that he aims at giving an elementary and non-technical account of the relation between suggestion on the one hand and mental analysis on the other. He gives a qualified assent to Freud's views, but upholds suggestion as a preferable explanation of those phenomena which analysts attribute to an emotional relation between physician and patient. There is an air of finality about the book which even its elementary nature does not justify; the work of McDougall and Trotter, which shows that suggestion is not a process easily explained, is not recognised, and statements are common which give a fictitious appearance of simplicity to the subject. On p. 104 the author writes concerning sleep, "In this situation ideas that present themselves to the subconscious have a greater chance of making an impression on the subconscious and being accepted by the subconscious"; but close reading finds no hint of the origin of these ideas. On the next page

we read that "a certain portion of the mind presides over these bodily functions, even over the cerebral cortex which is supposed to be in the most intimate relation to conscious mental activity," and this simple view should make unnecessary a later chapter, rather difficult to the ordinary reader, on Bergson's theory of the relation of mind to brain. The technical reader will not agree, in the absence of any definition of hypochondria, that the public tend to confuse it with hysteria (p. 56) and he will be surprised to find (p. 109) that Dr. Brown treats melancholia by suggestion. A crucial passage is that dealing with the forgetting of names (pp. 111 et seq.), which is a favourite theme of analysts, who have given detailed accounts showing the unconscious processes concerned in it; here was an opportunity to show the relation between the two theories, but the author explains the forgetting in terms of will, suggestion, fear of failure, and the law of reversed effort, without making any reference to the well-known observations and analyses that provide a seemingly quite different account of the mental processes that lead to the forgetting. Such an omission is difficult to reconcile with the declared aim of the book; less obvious, but more important, is the lack of any attempt to explain the attitude of the patient to the suggestionist, which is surely a most important factor in this form of healing.

The book is disappointing, and cannot be said to succeed in its object. Dr. Brown's demonstration of the utility of both analysis and suggestion in the same case is another matter; any method is good if it works, and only the psycho-analytical purist would refuse to use suggestion—whatever the explanation of the process may be—in cases where it is likely to prove useful.

FORENSIC MEDICINE AND TOXICOLOGY.

Sixth edition. By the late J. DIXON MANN, M.D., F.R.C.P. Edited by WILLIAM A. BREND, M.A., M.D., B.Sc., Barrister-at-Law, Lecturer on Forensic Medicine and Toxicology, Charing Cross Hospital. London: Charles Griffin and Co., Ltd. 1922. Pp. 573. 30s.

THIS work is well known as a text-book suited both for students and practitioners. To the student it may be recommended because of its reasonable dimensions, clear diction, and good classification of subject-matter; while for the practitioner as a book of reference it is convenient since few medico-legal problems are ignored, though lengthy citations of cases are omitted. Some years have now elapsed since Dixon Mann's death, and the present editor has taken great pains to bring the book up to date, especially in that difficult branch of medico-legal work concerned with lunacy and criminal responsibility. There are, however, some parts of this edition which are still in need of revision if the book is to retain its place as a standard work.

The section on post-mortem examinations calls for amplification, and should include the technique of removal and preservation of specimens for the preparation of microscopic sections. In the examination of blood-stains the guaiacum test might safely be deleted, now that the benzidine test has completely taken its place as a preliminary test. A description of the technique for the examination and measurement of red blood cells could with advantage be introduced, since it not infrequently happens that owing to the small amount of a blood-stain available this examination becomes of the utmost importance in proving at least the presence of mammalian blood.

In the section on toxicology systematic analysis is discussed under three headings; the discussion of the first group (volatile poisons) is inadequate, since no description of the general method of isolation of these poisons—i.e., steam distillation—is given; whilst groups 2 and 3, the alkaloids and the metals, are dealt with at length. The section on the analysis of arsenic calls for revision; the Marsh test, using zinc, is described in detail, whilst the vastly more important electrolytic method receives cursory mention. At a recent meeting of the Medico-Legal Society[1] emphasis was laid on the importance of using the electrolytic apparatus when the Marsh method of estimating arsenic is employed. The danger from the accidental presence of arsenic in the zinc employed in the older method was considered too great to warrant its use in toxicological analysis. Some of the special tests for alkaloids might with advantage be altered; a number of reactions could be omitted in favour of newer and more specific ones, while in all cases the concentrations of the various reagents used should be given. It is satisfactory to note that the editor has dealt with the section on food poisoning from a rational point of view. He points out that ptomaines, if they exist, are bacterial toxins in origin: thus in the present state of our knowledge it is the bacteriologist and not the chemist who should tackle problems connected with ptomaine poisoning.

On the whole, however, the editor has covered the ground well. The position of the medical man as a depository of secrets acquired in the course of his professional practice and the conditions under which it becomes his duty to divulge them are admirably discussed, with illustrative examples. The chapter on deaths resulting chiefly from asphyxia is of especial interest. In the section on "overlying" it is suggested that the apparent decline in infant mortality from overlying during recent years is to some extent due to greater appreciation among practitioners of the possibility of natural death in these cases, and to more minute investigation at post-mortem examinations.

This text-book has already a great reputation both in medical and legal circles, and the present edition will maintain its reputation.

SPADACRENE ANGLICA,

Or the English Spa Fountain. By EDMUND DEANE, M.D. Oxon. The First Work on the Waters of Harrogate. Reprinted, with Introduction by JAMES RUTHERFORD, L.R.C.P. Edin., and Biographical Notes by ALEX. BUTLER, M.B. Bristol: John Wright and Sons; London: Simpkin, Marshall and Co. 1922. Pp. 138.

THE medical profession owes a debt of gratitude to Dr. Rutherford and Dr. Butler for the interesting introduction and the careful and informing biographical notes in this volume. Deane was not the first to describe the English spa, for the honour belongs to Dr. Timothy Bright, who gave it that name in or about 1596. Bright was a remarkable man, for he was not only a doctor of medicine, but a clerk in Holy Orders (rector of Barwick), and was also the inventor or re-inventor of a system of shorthand called by him "Characterie." He never published anything concerning the spring, although Deane says in his introduction to his own book that Bright had meant to do so. Deane's little work was published in 1626 and is well worth reading. He seems to have been particularly attached to the spring, a chalybeate water, and took his friends to see it, one of whom, Michael Stanhope by name, has left an amusing account in his "Newes out of Yorkshire" of a visit paid in Deane's company in the late summer of 1625. Dr. Deane demonstrated the quality of the water to Stanhope by adding some powdered galls to a glassful of it, saying that it would turn the water to a claret die, wherein, continues Stanhope, "they were not deceived, for presently (to their both wonder and joy) the water changed colour and seemed to blush in behalf of the country who had among them so great a jewel and made no reckoning of it." It would be interesting from a literary point of view to know whether Crashaw had seen this passage about the blush, for he uses the same conceit in his well-known epigram upon the Miracle at the Marriage of Cana, wherein occurs the famous line, *Lympha pudica Deum vidit, et erubuit.*

[1] THE LANCET, July 15th, p. 129.

Deane's account of the spring is full of good things and admirably written. He mentions that there are various other springs in the district (between Knaresborough and Harrogate), both mineral waters and otherwise, and of the latter he says that two had been sainted—namely, St. Magnus Well and St. Roberts Well. However, he professes scorn for the cures alleged to have been worked at these wells, and concludes with the unkind remark that "to any such like Well will swarme at first both young and old (especially the female sex, as ever more apt to bee deluded). . . ." It is pleasing to find that in the seventeenth century there were physicians who had the courage to maintain that the mineral waters of their own country were equal or superior to foreign waters.

CLINICAL PATHOLOGY.

Précis de Diagnostic Chimique Microscopique et Parasitologique. Fourth edition. By J. GUIART and L. GRIMBERT. Paris: Lamarre. 1922. With 4 plates and 548 text illustrations. Pp. 1010. Fr.44.

THERE are now many books on the application of the methods of the laboratory to clinical diagnosis and this seems to be about as good as most of the better ones. If it has any definite characteristic, it is the amount of attention given to worms and other higher parasites, and English readers may find this useful because the attempt to make this section fairly complete has led to the inclusion of a good many out-of-the-way things not described in the similar books in common use. The interpretation of the results obtained is not discussed at any length; under the Widal reaction, for example, no indication is given of what the answer may mean. In the case of the Wassermann reaction, however, Dr. Guiart states quite plainly that he has less faith in it than some people; if the reaction is positive on several successive trials there is a presumption in favour of syphilis, but treatment should not be undertaken unless this is supported by clinical evidence. The coloured plates are poor and the text illustrations far below the excellent standard common in French books nowadays; some of them—e.g., the pictures of a graduated cylinder and a desiccator—are quite unnecessary. Better books are available for use in this country which this treatise is not likely to displace.

EPILEPSY, HYSTERIA, AND NEURASTHENIA.

Their Causes, Symptoms, and Treatment. By ISAAC G. BRIGGS, A.R.S.I. London: Methuen and Co. 1921. Pp. 149. 5*s*.

IT is a sign of the times we live in that a "book of good advice," "not intended to supplant the doctor," is published with the above ambitious title, and he may be excused if he asks what the qualifications of the writer may be, or on what grounds the latter can make the confident assertion that epilepsy, hysteria, and neurasthenia are prevalent among all ranks and ages of both sexes. It turns out, in the sequel, that the writer only wishes to play the part of the candid friend of the sufferer, and to insist on the necessity of "personal discipline" in addition to expert aid. Why the doctor should be unable thus to assist his patient does not appear, or are we to take it that this is one more part of the ideal medical curriculum that has, unfortunately, been omitted?

For the "good advice" of the book the patient may be obliged, though we all know what is apt to happen when this is overdone—a series of moral and "medical" dicta are flung at his head like so many bullets, as, for example, "no neuropath should have children," "the cure for hysteria and neurasthenia is solely hygienic," "hysteria is an obstinate nervous disease in which the patient acts in an abnormal manner, which is highly provoking to other individuals," "the effects of imagination are profound," and so forth. When, however, we are assured, and in italics, that "operation is the sole remedy for Jacksonian epilepsy," we wonder why the author did not get some neurological colleague of his at the University of Birmingham to aid him, or was his unnamed adviser by any chance a surgeon?

JOURNALS.

JOURNAL OF PATHOLOGY AND BACTERIOLOGY. Vol. XXV. No. 3. 1922. Pp. 281–408.—The Properties of Syphilitic Sera in Relation to the Specificity of Immunity Reactions, by J. Holker. The surface of a colloid can be regarded as a sort of checkerboard containing a definite number of atoms of various kinds and adsorption depends on the nature, arrangement, and spacing of these atoms. In reacting with antigens more or less of these spaces may be occupied. Syphilitic serum contains more large particles than normal serum; it has more euglobulin, is more viscous, and becomes opaque more readily on mixture with guinea-pig-heart-cholesterin or with distilled water.—The Opacity of a Mixture of Serum and Wassermann "Antigen" in Progressively Increasing Concentrations of Sodium Chloride, by J. Holker.—Action of Dilute Acids in Blood Cultures, by I. Walker Hall. Blood cultures may be obtained more certainly and quickly by adding dilute nitric or lactic acid to broth in quantities which, while not altering the reaction more than 0·1, remove inhibiting factors and accelerate growth.—The Histology of a Case of Anaphylactic Shock Occurring in Man, by H. R. Dean. A fatal case dying about an hour after his fourth dose of antitetanic (subcutaneous) serum showed an extremely congested liver with profound changes in the liver cells, which were swollen and empty-looking and in some cases without nuclei; the sinusoids showed also a great accumulation of leucocytes. Similar very rapid changes have been described by Weil in acute anaphylactic shock in dogs.—A Study of the Effect of Electrolytes on Hæmolysis, by H. D. Wright and P. MacCallum. In the hæmolysis of an immune-body-complement system, the inorganic constituents play an important part in the production of zone phenomena. The activity of different salts in preventing hæmolysis suggests that the phenomena depend on alterations of a physico-chemical nature in the protein constituents.—The Influence of Anæsthesia on the Restoration of the Volume of the Blood after Hæmorrhage and After Transfusion, by A. E. Boycott and C. Price Jones. Under anæsthesia the restoration of the blood volume after hæmorrhage is slower and less complete than in non-anæsthetised rabbits. This is attributed to a diminution in the permeability of the capillary wall to liquid passing from the tissue fluid to the blood.—Serological Examination of 100 Strains of the Gonococcus, by W. J. Tulloch. Of 100 strains of the gonococcus isolated from cases of acute and subacute male urethritis in Dundee, 72 per cent. are shown by agglutination and absorption tests to belong to one clearly defined serological type. The remainder appear to be various and indeterminate.—The Influence of Parathyroidectomy on the Skeleton of Animals Normally Nourished and on Rickets and Osteomalacia Produced by Deficient Diet, by V. Korenchevsky. Previous investigations on the effect of excision of the parathyroids on the skeleton have been vitiated by a failure to appreciate the importance of the diet of the experimental animals. If this is attended to, removal of most of the glands has an effect on the teeth but no apparent influence on the growth of bone either in normal rats or in rats rendered rachitic by defective diet.—The Sonne Dysentery Bacillus in Australia, by S. W. Patterson and F. E. Williams. This Scandinavian form of aberrant dysentery bacilli has been identified in diarrhœal cases in Melbourne.—An Interference Phenomenon in the Action of Chemotherapeutic Substances in Experimental Trypanosome Infections, by C. H. Browning and R. Gulbransen. Parafuchsin in the tissues interferes with the action of an amino-acridin compound in mice infected with a strain of trypanosomes resistant to parafuchsin.—A Lumbar Puncture Needle Suitable for Bacteriological Work, by H. R. Dean.—Proceedings of the twenty-fifth meeting of the Pathological Society of Great Britain and Ireland.

THE LANCET.

LONDON: SATURDAY, JULY 29, 1922.

The Meeting of the B.M.A.

THE annual meeting of the British Medical Association at Glasgow is drawing to a close, and its success from both scientific and sociological aspects is assured. We publish elsewhere in this issue Sir WILLIAM MACEWEN'S notable Presidential Address which was delivered on Tuesday evening, and its message is so clear and comprehensive that comment would be superfluous. Sir WILLIAM MACEWEN has been and is a great surgical figure, and his leadership of the Association confers mutual honour on it and on himself, a thesis which needs no support when it is put forward in his own University city.

The business meetings have been infused with a very proper spirit considering the times in which we live—the conclusions, so far arrived at, were concrete enough as far as existing conditions were taken into consideration, but there was a definite feeling that at any time circumstances might arise which would compel their modification. Especially may all this be fairly read into the decisions which have been arrived at in respect of the two large and vital questions discussed on the opening days—namely, that of professional secrecy and that of hospital organisation. The attitude now adopted by the Association, in the intention to protect medical witnesses who find themselves unable to answer inquiries in the box without violating professional confidences, at first sight may appear to have been weakened. But no business man—and the Representative Body must, in the interests of the Association, look strictly at the business aspect of professional positions—can fail to endorse the wisdom of the new policy. Put briefly, last year the Association was committed to the defence and support of any medical man who, in any circumstances, might refuse to answer judge or counsel in a law court, alleging that to do so would be to break the trust reposed in him by a patient. From a business point of view this was a dangerous position for the Association, which had no opportunity of judging whether the medical witness was wholly justified in his conduct, absolutely well-intentioned and chivalrous as it might have been. Under the new policy of the Association the situation must be reviewed by the Council, or the Central Ethical Committee of the Association acting for the Council, before unqualified support will be extended to the member who has come into collision with the Court. The policy is only reasonable, but places of course a responsibility upon the Council of the Association to act with great promptitude. A further resolution of the Representative Body, if it becomes operative, should tighten this responsibility by decreasing the number of occasions on which it need be exercised. This decision is that the proper preservation of professional secrecy necessitates a measure of special consideration being recognised for medical witnesses, an expression of opinion with which most of our readers will be in accord. But the justification for this special consideration requires to be arrived at, so that the public may understand the justice of the general medical attitude. Law Courts will then follow suit.

The hospital policy of the Association, as revealed at the meeting of the Representative Body, showed a similar appreciation of the fact that the general medical attitude ought to be appreciated on two fundamental points. There may come in the near future a clash of interest between medical service under the Insurance Acts and the authorities of the approved societies. A hospital policy, definite for the time but flexible for the future, is necessary to meet this situation, and the Representative Body of the Association have adopted such a policy. Secondly, the payment of medical staffs upon voluntary hospitals is a matter on which the medical profession, whether in general or consulting practice, are not of one accord. Now some measure of unanimity ought to be arrived at in the medical profession upon so outstanding a matter, and the action of the Representative Body in adopting a report attempting—and very fairly succeeding—to define the main issues should be exceedingly helpful. The Representative Body must be congratulated upon its work.

Cerebellar Function.

THE Presidential Address on Brain Surgery, to which allusion has been made, sets forth the surgical difficulties in diagnosing abscess or neoplasm beneath the tentorium cerebelli. The address should be read in conjunction with this year's Croonian Lectures, recently delivered before the Royal College of Physicians of London by Dr. GORDON HOLMES, and published at length in our columns.[1] Both will repay careful study by all who are interested in the major problems of neurology. Of these one of the most controversial, as it is one of the oldest, is constituted by cerebellar function and its modus operandi, and while Dr. HOLMES admits that in all probability the exact nature of cerebral and cerebellar interaction will not be settled by clinical technique alone, perusal of the Croonian Lectures will convince the reader of the weighty contribution the clinico-pathological method can make to the subject, even if the precision of experimental physiology is to some extent lacking. Naturally, both in the case of gunshot wounds of the cerebellum, and tumours of the same organ, from material of which types the lecturer has elaborated his closely reasoned argument, it is not always easy to separate disorder of cerebellar function, *sensu strictiori*, from that of mechanisms united by intimate anatomical links to that mass of neural tissue; further, Dr. HOLMES has not attempted, except indirectly, and as it were in passing, to differentiate between cortical and nuclear function in respect of the cerebellum. He has preferred, taking the organ as a physiological unit, to describe in admirably minute yet logical and consecutive fashion the symptoms arising from disease of that structure and presumably referable directly to its involvement. Though he himself has given us clinico-pathological studies of the primary cerebellar atrophies he has not utilised these in any degree, apparently, notwithstanding their value for the subject, the reason offered being the not infrequent concomitant degeneration of other, non-cerebellar, structures.

A unilateral lesion of the cerebellum in a general sense gives rise to a series of motor defects in head and neck, trunk, and limbs, on the same side, the description and interpretation of which have occupied innumerable observers for the better part of a century; elaborateness and complexity have, perhaps not unnaturally, come to take the place of the simplicity, not to say superficiality, of the earliest investigations, and it is one of the outstanding merits of Dr. HOLMES'S

[1] The Clinical Symptoms of Cerebellar Disease and their Interpretation, THE LANCET, June 17th, 24th, July 8th, 15th.

contribution that he has essayed an analysis of these symptoms calculated to lead, if not to complete clinical, as well as physiological, unification, at least to the nearest approximation to that end which can for the present be expected. Thus from the manifold features of cerebellar defect usually described as atonia, astasia, ataxia, asthenia; from the adiadochokinesis, dysmetria, asynergy, disequilibrium, and so on—terms often by no means mutually exclusive and in any case not always entirely specific—Dr. HOLMES extracts two chief elements as characteristic of cerebellar disorder—viz., atonia or hypotonia, and "a disturbance in the measure and time relations of the contractions of muscles that should work together harmoniously." To the former of these he ascribes many of the familiar cerebellar symptoms of clinical medicine—the disorders of gait, the irregularities in movement of individual limbs, the inability to perform alternate movements rapidly; both static and kinetic defects, nystagmus, asthenia, tremors, and the cerebellar knee-jerk are attributable, in his view, largely to loss or impairment of tone in the musculatures. For the latter Dr. HOLMES has not, it appears, devised any expression of his own; the errors in the measure and time relations of muscular contractions are classifiable as dysmetria (hypometria and hypermetria), or as ataxia; we gather that the lecturer favours the simple and non-committal term of incoördination. Behind the atonia and the incoördination are, in his view, two corresponding physiological disorders attributable to cerebellar disease; one is of the mechanism maintaining and regulating postural tone in the muscles, and the other is of a kindred mechanism which coördinates the modifications of tone accompanying the relaxing and contracting movements of muscles in activity. These twin mechanisms are essentially cerebellar.

Such is, in brief outline, the ingenious attempt made by the Croonian lecturer to introduce simplicity into cerebellar complexity, and the fact that it is derived from patient investigation of well-nigh one hundred cases of cerebellar disease is more than sufficient reason for its careful study by the neurologist. Certain difficulties will doubtless suggest themselves to those who from personal acquaintance with cerebellar symptomatology have earned the right to criticise, and it is only fair to Dr. HOLMES to say that he is obviously well aware that finality has not been reached; in fact, the candour with which he admits some of the difficulties is one of the attractive features of the lectures. Not a little of what is described from personal investigation runs counter to the observations of others; Dr. HOLMES is no believer in cerebellar localisation, and considers that when tone is disturbed at all, from small lesions, this atonia is never confined to one limb or segment of a limb—a global theory of cerebellar dysfunction to which not all will subscribe. The almost irresistible tendency of the cerebellar patient to correct his infirmity by voluntary effort is one of the complicating factors in the interpretation of cerebellar symptoms to which frequent allusion is made, and some, though not all, of the cerebellar "attitudes" are set down to it. Due recognition is given to the disconcerting fact that in some cases of cerebellar disease the cardinal feature of atonia is not observable; less attention is paid to the experimental evidence (though it is not ignored) that the function of some parts of the cerebellum and its peduncles is apparently tone-reducing and not tone-exciting; further, it is allowed that maintenance of postural tone is possible, experimentally, though the cerebellum be ablated. Dr. HOLMES'S account of cerebellar symptomatology is not diminished in usefulness because of possible discrepancies between the clinical and the experimental method; on the contrary, we are convinced, with him, that a careful analysis of functional abnormalities in man is of distinct value to physiology, and we could not wish to find a more excellent example of what the clinical method can accomplish than is contained in the Croonian Lectures of 1922.

An Experimental Station for Medicinal Plants.

IN the introductory chapter of his book on Materia Medica—recognised as a classic of drug literature—Prof. H. G. GREENISH defines pharmacognosy as "that science which aims at a complete and systematic knowledge of crude drugs of vegetable origin." Prof. GREENISH is this year's President of the British Pharmaceutical Conference, and at the annual meeitng which was opened on July 25th at Nottingham he chose as the appropriate theme for the presidential address the need for the encouragement of and the provision for improved facilities for the study of this science Every qualified chemist and druggist must of necessity know something of the subject, if it be only the fringe, but what the more advanced thinkers desire is that students should go beyond the limits of the qualifying examination, and that the study should be pursued after graduation. There is no lack of evidence that a druggist may carry on business with the merest smattering of materia medica, but medical practitioners will agree with Prof. GREENISH that a pharmacist with a deep knowledge of this important subject will be better equipped as the handmaid of medicine than will be one who knows next to nothing about the science.

In pharmacy, as in many other callings, there is a big cleavage between two distinct sections: on the one hand there are the unashamed utilitarians who argue that pharmacognosy is not "directly translatable into pounds, shillings, and pence" and on the other there are those who favour a judicious blend of knowledge for its own sake and knowledge for the sake of what can be made out of it. To the purely utilitarian the President of the British Pharmaceutical Conference will, perhaps, plead in vain, but there is a large and. it is said, a growing body of pharmacists who are anxious to extend their knowledge of pharmacognosy and believe that a more thorough and practical acquaintance with this science would make a more appropriate adjunct to pharmaceutical practice than does the traffic in perfumery and hair-brushes. The more scientific section will welcome the appeal made by Prof. GREENISH for improved facilities for learning how to recognise drugs, how to distinguish them from possible substitutes, how to detect adulteration and determine their purity, and how to do many things which at present only a limited number are able to do with confidence. The proper body to organise systematic education on the desired lines is clearly the Pharmaceutical Society. As Prof. GREENISH says, this Society with its museums, herbaria, laboratories, library, and school, and with its fine record of 80 years, is entitled to regard itself as the headquarters of pharmacognosy in this country, as the body to which reference should be made for any information respecting crude drugs. This position can be retained only by maintaining those sections of its activity that relate to pharmacognosy in a state of the highest possible efficiency. At the present time there is an important missing link in the educational scheme, and the consequence is that research work is hindered. No experimental station exists in this country in connexion with the Pharmaceutical Society for pursuing investigations on the influence of selection, breeding, and manuring in increasing the amount of active constituents in plants. Such a station, says Prof. GREENISH, would be invaluable as an aid to the furtherance of scientific pharmacognosy, and there would seem to be no insuperable

difficulty to its establishment, if not as an independent station, as an adjunct to one of the agricultural institutes.

At present the research laboratories of the Pharmaceutical Society have no place where the material necessary for their work can be grown and have to depend upon the assistance of the Director of Kew Gardens and the Curator of the Chelsea Physic Garden, and while this assistance is always willingly given it would be clearly a great advantage if the Society had an experimental station of its own. The President of the Conference gave some indication of the kind of investigations which still remain to be undertaken, and could be pursued if adequate facilities were available. For instance, the opinion is gaining ground that alkaloids form a means by which plants dispose of the excess of nitrogen resulting from the breaking down of complex nitrogenous substances. Until more light is thrown on this it is difficult to see how rational experiments can be conducted to induce the plant to produce large quantities of such alkaloids. Prof. GREENISH put the two alternatives in a striking sentence: "While the synthetic production of quinine, for example, would undoubtedly be a triumph for organic chemistry, the more economical method of production may well lie in the proper utilisation of the countless millions of natural laboratories that every plant possesses in the cells of which its tissues are composed." In this one direction alone the imagination finds great stimulation. Here, indeed, is a vast and important field for research which promises to yield results bearing a profound influence on the future of medicine. But before these theories can be tested effectively, there must be established a means for testing them, and it is hoped that the plea made by Prof. GREENISH for the encouragement of advanced teaching in materia medica and the provision of an experimental station has not been made in vain.

HEALTH CONDITIONS IN WEST AFRICA.

WEST AFRICA has never been famed for a salubrious climate but health conditions appear to be getting better. Recent returns[1] show a considerable improvement in the death- and invaliding-rates for non-native officials on those for 1920. The invaliding-rate, indeed, (16·5 per 1000) is only four-fifths of the previous lowest figure, recorded in 1917, while the death-rate has fallen from 16·3 in 1920 to 12 in 1921. This improvement is largely due to the excellent figures for Nigeria. It is interesting to note that of the 37 deaths occurring during the year, 14 only were attributable to semi-tropical diseases, such as blackwater fever, malaria, or heat stroke, the rest being due to such causes as might terminate life after residence in any climate. Twenty-eight of these deaths occurred in West Africa and nine in the United Kingdom. It would seem that West Africa is gradually shedding its evil reputation as an unhealthy spot, and this progress is of interest in connexion with certain new information, just issued by the Colonial Office in a pamphlet, "African (West) No. 678," for the use of candidates for appointments on the West African Medical Staff. The medical services of the West African colonies and protectorates—namely, the Gambia, Sierra Leone, the Gold Coast (including Ashanti and the northern territories), and Nigeria (southern and northern provinces)—form one service under the name of West African Medical Staff. Excellent opportunities for practice are afforded in this service for men between 23 and 35 years of age. A comparison of the conditions outlined in the pamphlet with those prevailing a year ago shows that salaries and emoluments have been increased, while the years of service necessary to qualify for a pension have been considerably reduced. There are other advantages which the prospective candidate would do well to study from the original document or from the full summary which will appear in our forthcoming Students' Number.

[1] Vital Statistics of Non-native Officials. Returns for 1921, Crown Agents for the Colonies, Millbank, London, S.W.1. 6*d*.

Annotations.

"Ne quid nimis."

DEPARTMENTAL HEALTH REPORTS.

IN the last week there has appeared the third annual report of the Ministry of Health and of the Scottish Board of Health, the English report also including the report of the Welsh Board. Both reports deal with the year ended March 31st, 1922, and we give on p. 246 a summary of the Scottish report, which appeared slightly in advance of the other. It is now assumed as a matter of course that the Departments of Health should annually and promptly give an unvarnished account of their activities—an example unique among Government departments, and not unworthy of imitation. This central attitude has its local counterpart in the approachableness of the medical officer of health to every humble citizen in his area. The Minister of Health states that, as in previous years, the report of the chief medical officer of the department will be published in a separate volume. The present report is a record of the more important business transacted by the department during the year, and does not cover matters of routine or detail. A prefatory note records how far the Ministry of Health has complied with the recommendations of the Committee on National Expenditure. The net result on the total estimate is that although more money will be devoted to essential health services in 1922–23 than was contemplated by the Economy Committee, less money than that Committee thought reasonable will be spent on the department as a whole. Lord Meston's Committee is still inquiring into the system of grants-in-aid with a view to seeing if and how some system of fixed grants can be substituted for the percentage grant system. The prefatory note recalls such important happenings during the year as the Rockefeller Foundation's gift of two million dollars for a school of hygiene, the completion of 100,000 houses built under the assisted scheme, the additional benefits amounting to £450,000 available for dental and hospital benefit out of the approved society surpluses, the valuable work of the Voluntary Hospitals Commission, the stimulus given to proper working of the health services by the increased security of tenure of appointments, and the progress made with compiling registers of nurses and dentists. This manifold work has been undertaken in spite of the swamping of the department by the enormous volume of relief work entailed by unemployment during the year, at the end of which a million and a half persons were receiving assistance, five-sixths of them in their own homes. The report of the chief medical officer, when it shortly appears, will afford an opportunity of returning to the work of the Health Department in England and Wales.

THE NUBILE AGE IN FRANCE AND ELSEWHERE.

THE equilibration of births and deaths is claiming interest in civilised countries. In an instructive article in our present issue Dr. John Brownlee examines the qualities of a stationary population and comes to some remarkable conclusions: among them, that the reduction in infantile mortality is of little importance as regards the future of the race; and that, when the birth-rate becomes equal to the death-rate, the expenditure on old-age pensions will double itself, and more work will be required of the young and vigorous. These aspects of the question deserve study. The anxiety of Frenchmen to maintain the equilibrium of births and deaths in their country has given rise to a number of concrete proposals for raising the number of births. Some have been accepted by the State and others are being warmly advocated by the Alliance Nationale pour l'accroissement de la population française. In the *Revue de l'Alliance Nationale*, Mr. Fernand Boverat, the secretary-general

gave recently an account of the legislative measures whose adoption he considers necessary for the successful waging of the war against depopulation. These include State subsidy for each child after the fourth, a birth bonus (payable only for the third and successive births), relief of taxation, provision of housing space, suppression of abortion, revision of the law of inheritance, and a family vote giving greater suffrage rights to the parents of large families. In all the proposals put forward up to date we do not remember yet having seen any suggestion for the encouragement of early marriages. There is no doubt, however, that early marriage is an important aid to the increase of population, for woman is most fertile in youth. Dr. Maurice Boutarel tells us [1] that in the Middle Ages marriage in France was frequently consummated at the age of 12 or even 11 years, while he has been unable to trace any record of a maiden being married after her fifteenth year in the Renaissance period. There were at that time, however, poets who foresaw an age of disastrous prudence, as the following quotation shows:—

> Le bon temps reviendra . . . .
> Quand jeunes filles de quinze ans
> Ne voudront point qu'on les marie.

Was there in the realisation of this prophecy the germ of the declining birth-rate in France?

In England a girl can legally marry at 12 years, a fact which causes surprise to people unacquainted with our marriage laws. By the law as it stands neither a boy under 14 nor a girl under 12 can contract a valid marriage but only one which is imperfect and which depends for its validity upon its being ratified by the girl when she attains the age of 12 and by the boy when he attains the age of 14. A girl, therefore, of the age of 12 but not yet 13 is nubile, and can marry without the consent of her parents. No doubt considerable difficulties would arise in the event of a boy of 14 and a girl of 12 attempting to get married in this country, and, indeed, marriages before the age of 16 are very rare. It is, of course, true that the earlier in life a woman becomes married the greater number of children she is likely to bear, and the chances of child-bearing diminish very markedly with the increase in the age of the woman. Thus, while the average number of children borne by a woman who marries at the age of 20 is 5, the number is only 1·3 in the case of a woman marrying at the age of 35. This, indeed, is one of the many complex factors concerned in the declining birth-rate in this and other countries. It is, however, unlikely that marriage at so early an age as that at which child-marriages were contracted in many European countries in the Middle Ages will ever be revived in this or in any other civilised country, and the disastrous results which have followed this custom in India will render them repugnant to the people of Western Europe. None the less, it has always been the opinion of obstetricians that pregnancy and child-birth in very young girls is not accompanied by any undue danger and the figures published lately from the Johns Hopkins Clinic confirm this view. Dr. J. W. Davis has analysed the results of the confinements occurring in the department of all girls under 16 years of age, and his results are in harmony with those published by Varnier some years ago. Dr. Harris's observations include 500 labours at the ages 12 to 16, among whom the blacks outnumbered the whites by more than 2 to 1, an interesting fact since of all the patients admitted to the clinic less than 45 per cent. are blacks. As the result of his investigations, Dr. Harris came to the conclusion that pregnancy and labour are attended by no greater danger in young primiparæ than in more mature women. The duration of the labour tends to be shorter, the size of the child is about the average, and contracted pelves are not more common, so that the good results obtained would appear to be dependent upon the greater softness and dilatability of the soft parts. That it is possible for children to become pregnant and survive childbirth at a very early age is shown by the records of children who exhibited precocious menstruation. The most remarkable of these is the case recorded by Mandeslo of a child who is said to have commenced to menstruate at the age of 3 and to have given birth to a son at the age of 6.

[1] La Constitution d'un Foyer d'après les Vieux Textes: Le Mariage, Paris Médical, June 17th, No. 24, p. 5.

STUDIES IN EXPERIMENTAL SILICOSIS.

A MONOGRAPH by Dr. A. Mavrogordato[1] on experimental work carried out by him since he went three years' ago to study silicosis on the Rand corroborates the deductions drawn from epidemiological observations, for of all the dusts used, only that of silica was found to produce specific results comparable to those which characterise tuberculous silicosis in the human subject. Mavrogordato finds that while the solubility and chemical activity of dust are of great importance, but little attaches to hardness or sharpness; chemically inert dusts are not considered dangerous. Dust is taken up from the alveoli of the lungs or, if injected into the circulation, by macrophage cells which originate from the lining epithelium. When the particles are composed of silica, and only then, these cells tend to aggregate together or agglutinate with the formation of pseudo-tubercles which block the lymphatics. Silica particles are also found to possess the peculiar property of protecting the ingesting cells from autolysis and from digestion in the lymph; they are preserved as eggs are by water-glass. This result may be due to the formation of alkaline silicate through the action of the tissue juices and its subsequent precipitation as silicic acid when tissue death with acid autolysis takes place. The blocking of the lymphatics which occurs prejudices the ability of the lungs to deal with infections, particularly that of tuberculosis; but the opinion is expressed that other bacterial flora, such as that of pneumonia, plays a part. Hence it is that conditions of work in gold-mines which favour the survival of pathogenic organisms, such as darkness, temperature, and humidity, are of importance. Some light is thrown on the well-known absence of dust-phthisis among coal-miners, even though the dust of coal-mines contains a fair proportion of silica; for although, when once silica is fixed in the lung tissues, coal-dust exerts no eliminative effect—if anything the influence is in the opposite direction—yet a prior or even simultaneous exposure to coal-dust appears to set up a condition in the lung which is inimical to the fixation of silica. This monograph contains 118 excellent illustrations.

[1] Studies in Experimental Silicosis and other Pneumonokonioses. A. Mavrogordato. Publications of South African Institute for Medical Research. March, 1922.

THE PRICE OF BLUE-BOOKS.

THE long-expected annual report for 1920 of the Registrar-General for England and Wales has just appeared, its postponement being due to the increased work involved by the Census of 1921. We have already dealt with the preliminary figures issued by the Registrar-General for this remarkable year which produced "records" of so many kinds. We are glad to note that our protest (THE LANCET, June 24th, p. 1259) against the increased price of the annual report of the Registrar-General for Scotland has been effective. On July 3rd Lieut.-Colonel F. E. Fremantle asked the Secretary to the Treasury to state the reasons for the increase in price of this publication from 5*s.* for the volume issued last year to £2 17*s.* 6*d.* for the current issue; whether regard had been had to the restricted circulation that would result and the disadvantages to local authorities and to the public at large if the report were not cheaply accessible. In his reply, by letter, Sir John Baird explained that the reason for the large increase in the price of this and other Government publications is that in view of the present financial condition of the country it is no longer considered justifiable to sell

official publications at prices far below cost. The low prices hitherto charged could hardly be said to have led to wide circulation, since the sales of the previous report of the Registrar-General for Scotland (priced at 5*s.*) only amounted to 74 copies. However, Sir John Baird admitted that the price of 57*s.* 6*d.* seemed to him too high, and he was having it altered to 30*s.* Careful note would be made of the sales in order to judge whether it would be to the interests of the Exchequer to fix it still lower next year, but the general experience hitherto with publications of this character had been that their restricted circulation was not very responsive to variations in price. The question whether, in view of the small demand for this work, it is justifiable to publish all the elaborate tabular matter in the report is receiving official attention. Sir John Baird draws attention to the fact that the corresponding English report, which has a considerably larger sale, is being issued at 20*s.* Even this price, we fear, is likely to detract from the utility of the report, and prevent that free circulation among representatives of local authorities and others interested in health problems which the public welfare renders desirable. Government Blue-books cannot be issued on an economic basis if they are to achieve the wide publicity which is the main justification of their laborious production.

FACTORY HYGIENE IN 1921.

YEAR by year the annual report of the Chief Inspector of Factories tells of progress made in that field of preventive medicine which is concerned with industrial life. The report just issued[1] which deals with the past year takes its correct place in the series; more is now told of improvements in conditions of work, less is recorded of the darker side to the existence of which these reports 20 years ago had to refer; more is said of consideration given to workers, less of injustice and hardship. The late Chief Inspector, Mr. R. E. Graves, whose personality, dear to all, sudden death has since removed in the heyday of useful activity, tells of new developments which indicate that we are still in the van of industrial advance; here Sheffield receives particular notice with regard to improved rolling-mill plant, a new synthetic silver-nickel, and the introduction of mechanical grinding in the cutlery trade. Factories, notwithstanding trade depression, continued to increase in number and workshops to disappear; meanwhile, the work of inspection, on account of the number of codes of regulations and orders, becomes more and more complicated. Mr. H. J. Wilson ascribes mainly to trade depression a marked fall in industrial accidents to the prevention of which inspectors have devoted much of their energies; excellent results have been obtained where "safety-first" organisations have been adopted which in one case reduced a loss through accidents of 4235 days in 1920 to one of 1225½ days in 1921, with a gain to the workers of £1200 in wages. He deals with many types of accident and gives figures for metal-working power-presses which display how important is the part played by lack of care or judgment on the part of operatives. Mr. G. S. Taylor, who deals with industries and processes controlled by special regulations on account of recognised dangers, claims that further active coöperation between employers and workers is needed to reduce the toll of industrial diseases and accidents which, for the most part, can only be avoided by care on the part of the workers themselves. Particular attention is drawn to dangers connected with loading and unloading ships in dock; but generally he reports favourably upon compliance with statutory requirements and upon the introduction of advantageous devices, such as a power-lathe for china-turning in the potteries, and the substitution of pure tinning for the more injurious common tinning in the hollow-ware trade. The electrical department under Mr. G. S. Ram has undergone needed expansion in order to cope with great extension in the use of electric energy of recent years with attendant dangers. Mr. Ram tells how under pressure from the Home Office manufacturers have done much, from the safety point of view, to improve apparatus and accessories. Foolhardiness on the part of skilled persons, however, and the employment of unskilled persons on dangerous work are still too prevalent causes of accidents. When discussing health and sanitation, Mr. E. A. R. Werner claims that the standard of cleanliness, especially in food factories, is improving, even though here and there drastic reforms are imperative. The substitution, which is gradually taking place, of manufactured abrasive wheels, containing little or no free silica, for ordinary grindstones is regarded as a short cut to a great reduction of the dust danger. Employers are credited with more enlightened views than of old; more attention is being paid to ventilation, to lighting, and to temperature, all of which influence health and output; thus "a chill atmosphere in a workroom is not conducive to efficiency, but rather to bad workmanship and accidents." But neglect of window-cleaning is still a matter of frequent comment. The extension of the industrial welfare movement, dealt with by Miss H. Martindale, has been considerable; whereas, in 1914, comparatively few schemes were in operation, now excellent ones are reported upon all over the country. Moreover, it is the voluntary spirit of welfare which is expanding rather than the mere provision of the irreducible minimum to satisfy the letter of some welfare Order. Nevertheless, these Orders applied to different industries, such as fish-curing, gut-scraping, making bichromate of potash, and glass-bevelling, to mention only a few of the more recent Orders, have proved the starting point of welfare and works committees. Such committees where tried have found favour and more and more use is made of them. The value of first-aid is stressed; thus, out of 281 septic cases reported on, 128 received no first-aid treatment; while in another division a reduction took place of 50 per cent. in the number of cases that became reportable owing to neglect of treatment.

The chapter on industrial diseases is contributed by Dr. T. M. Legge, who dwells on the need for medical students to be instructed as to the social life of the people among whom so many of them will practise. The medical department has been strengthened by two, so that there are now five medical inspectors to supervise the health of some seven million factory workers. Cases of lead poisoning continue not only to be few, but also to be less severe; we recently referred[2] in these columns to a slight increase in the pottery industry. An interesting discovery by Dr. J. C. Bridge is reported of "brassfounder's ague" among men using the oxy-acetylene flame on galvanised plates; the heat volatilised the zinc on the plates, when it was inhaled by the men and caused the well-known attacks of shivering and malaise. The importance of rest in the treatment of carbon monoxide poisoning is emphasised, and the need for repressing the activities of rescuers who feel they are doing something when walking up and down men who have been gassed. A detailed report upon poisoning in aniline-black dyeing by Dr. S. A. Henry is given, an interesting condition which is to receive further inquiry. Dr. Legge also reviews the work done by certifying factory surgeons which he considers of great value, not only on account of the young persons rejected or conditionally certified for work, but for the deterrent effect having to "pass the doctor" has upon others. A statement made by one factory surgeon that, as 30 per cent. of female workers entertain nits in their hair, the presence of these unnecessary guests cannot usefully be made a cause for rejection, presents an unwelcome picture of personal hygiene in this twentieth century. Closer coöperation between the work of factory surgeons and that of the juvenile employment bureau, and of a welfare supervisor or factory nurse where such exist is said to be needed. The subject of hours of work is discussed by Miss Constance Smith, who points out

[1] Annual Report of Chief Inspector of Factories for 1921. H.M Stationery Office. 1922. Pp. 131. 3*s.*

[2] THE LANCET, July 15th, 1922, p. 141.

that to-day any suggestion of increased hours meets more determined opposition from labour than a proposal to reduce wages; she claims that since the 48-hour week was established increased leisure has affected the workers beneficially. The working of the Act of 1920, permitting two-day shifts for "protected persons," is of interest, even though trade depression has limited its usefulness; illegal overlapping of individuals by their employment on consecutive shifts has given no trouble, and broadly, the system, where tried, has proved satisfactory. The value of the Act will be tested when trade revives, since it will permit increase of output without immediate increase of plant. The opening words of the chapter devoted to truck, written by Miss H. C. Escreet, summarise the present position of industrial hygiene: "Shorter hours, lessened fatigue, higher standards of health and comfort—all these, strangely enough, were fruits of the war in the industrial world, and to these must now be added the decline of truck." The status of the average worker has been steadily raised. Truck, it may be said, no longer persists as a system of management. It has been replaced by real welfare.

The report closes with two studies: one, by Miss Martindale, concerns underground workrooms in London. The conditions found are reported as better than might have been expected in such places; lighting, though calling for improvement, was fair; overcrowding was absent; heating, dampness, and cleanliness, although not ideal, were far in advance of the state described last century by Chadwick; even ventilation, when tested by the kata-thermometer, showed a fair standard of air movement. The second study, by Mr. J. E. Harston, refers to conditions in the glass industry. Here old-fashioned and unsatisfactory works still exist, but considerable development has taken place in recent years; the tendency is for large modern companies to supplant small employers. Automatic and semi-automatic machines for glass-blowing are replacing hand labour; cool-air douches are being installed for men engaged at the furnaces in glass-houses; and batch-mixing is done by mechanical means, so obviating the danger from the dust of red lead. Generally, this industry under modern conditions is neither dangerous nor unhealthy.

TUBERCULOSIS IN RUSSIA.

IN February last Russian medical men held at Petrograd what is described as their first tuberculosis congress, and from the report[1] now available of the proceedings, which lasted a week, it appears that, as might have been expected, administrative difficulties have been very great. In November, 1919, the State took over direction of the anti-tuberculosis campaign, instituting headquarters at Moscow, where a whole series of institutions, described by W. P. Zwetkoff as functioning well, and including open-air schools, was erected to serve as models for the provinces to emulate. Local governing bodies were directed to coöperate, and for most of them was reserved a quota of beds at the health resorts. Want of transport to connect with these places, and of skilled personnel, hindered the plan, so that the State-supported visitors became fewer. Among other difficulties were these: the loss of the Petrograd sanatoria in Finland; in the Ukraine a change of government fourteen times repeated; the ravaging of the Volga steppes by invading armies; great scarcity of X ray apparatus, of plaster-of-Paris, and of koumiss, the fermented milk of mares, a substance much in repute in Russia in the treatment of phthisis; and finally, the economic state of a country brought low by war and drought. According to Semaschko, the further existence of tuberculosis institutions outside Moscow depends upon their gaining effective support from communal organisations, from private enterprise, or from the working classes, whose right to the disposal of the health insurance contributions made by themselves is granted. Measures actually taken in Russia to meet the situation include the abolition of recruiting for the army under the age of 21, it being found that military enrolment under that age was deleterious to health. Young women of the artisan or peasant class have been trained as dispensary nurses, and then sent back to their home districts to work, where their activities are found to be well received. In children's sanatoriums, where education is necessary, it has been easier to train teachers as nurses than nurses as teachers. Since for many reasons current tuberculosis statistics understate the prevalence of the disease, a commission was established at Moscow in 1920 to examine the effects of the war years on public health. Their report is not yet formulated; but in Petrograd excessive tuberculosis mortality was found at either end of life, while in the middle years males died more than females. A surprising feature is that the type of tuberculosis in that city was of a chronic, indeed favourable character. A number of scientific contributions were made to the conference. Kressling brought forward a Russian preparation akin to Much's partigens; it is described as causing no local reaction. Krestjaninoff read a paper on the complex subject of the rôle of the leucocytes in phthisis, and Belanowsky on autosputotherapy, 2 c.cm. of the patient's own sputum, dissolved in distilled water and sterilised, being injected twice weekly. Judin, of Moscow, showed examples of immobilisation apparatus constructed of simple, accessible material. The general impression to be gathered from the report is of effort under difficulty.

[1] Zentralblatt für die gesamte Tuberkulose-Forschung, June 8th, 1922.

GASEOUS EXCHANGES IN ROWING.

M. N. J. Dirken, of the physiological laboratory of the University of Amsterdam,[1] has made an extensive study of the respiratory exchanges in rowing. The methods employed for estimating these exchanges are fully set forth, and they include those associated with the names of Zuntz and Geppert, Haldane and Douglas, with the modifications necessary to adapt them to a rowing apparatus set up in the laboratory. The respiratory movements were recorded graphically, the output of work measured, while pulse-tracings were taken and the blood pressure estimated. It was found that the ventilation of the lungs is a linear function of the oxygen consumed. The respiratory frequency, however, does not run parallel with the oxygen used, as respiration is involuntarily adapted to the rhythm of the movements taking place during the act of rowing. The observations on the quotients of lung ventilation—i.e., the ventilation per minute over the oxygen used per minute—are interesting. In all the persons experimented on, it was found that the ventilation per litre of oxygen taken in during work was less during rest—i.e., the ventilation seems to be more economic during work. These results, however, are unfavourably affected by psychical influences. In general, under similar conditions the ventilation coefficient remains the same and does not seem to undergo any marked change under the influence of increased training. The blood pressure and pulse-rate were measured while the person experimented on was in a comfortable sitting position immediately before and after rowing. This blood pressure might be unchanged, but as a rule there was a slight rise of pressure after rowing, less marked in diastole than during systole, so that the amplitude of pressure variations was increased. The pulse-rate naturally during work was greatly increased, and it remained for more than a minute at the increased rate after cessation of rowing, and then fell steadily during the succeeding minutes. More interesting, perhaps, is the relatively slow pulse that obtains as the result of training (in one case 45 per minute), and the further fact that in the course of training the frequency of the pulse-rate steadily declines. The author confirms the observation of Bainbridge as to the intimate relation between the oxygen used and the pulse-rate, both increasing in the same ratio during moderate work.

[1] Arch. Néerland. de Physiologie, vol. v., 1921.

With heavier work the ratio varies, the pulse-frequency does not keep pace with the increased oxygen consumption, as other factors—e.g., increase of the pulse volume and improved use of oxygen in the body—come into play. In "trained" rowers, the pulse-rate in relation to oxygen intake does not rise so steeply as in the untrained. There is not always a simple proportion between the amount of work done and the oxygen used; in strenuous work the oxygen consumption may exceed ten-fold the amount used in repose. The respiratory quotient appeared to be increased during rowing, but the author points out that his experiments only lasted a short time and were made 12 hours after the last meal, when stored carbohydrates were available.

THE PUBLICATION OF EVIDENCE.

EARLY this month two inquests were held in London upon cases of suicide, in the course of which the coroner expressed his opinion that much of the evidence would be better withheld from the public. Since then the nine-days' trial of the Russell case in the Divorce Court has been reported in the newspapers with an amount of detail that has evoked unfavourable comment. The question in connexion with the Russell case, which appears likely to engage the attention of Parliament, is one of interest to the medical profession, as it concerns the publication in the press of extracts from evidence given by medical men in the witness-box with regard to their patients. It is not necessary to describe here in detail the nature of the evidence in the Russell case by medical witnesses, by the parties, and by other lay witnesses in order to point out that the newspapers have recently contained much that would be calculated to cause grave anxiety to persons entrusted with the care of the young, and to men and women interested in the protection of the public morals. From the observations of the City coroner at the inquests referred to it is gathered that he considers full reports of cases of suicide as likely to excite weak-minded persons to imitation, particularly with regard to the means of suicide adopted. He also questioned the necessity for making public letters left behind by intending suicides of a kind calculated to distress their relatives, and he went so far as to hand letters in one of the cases before him to the jury without reading them aloud, so that the newspaper reporters present should not be able to gather their contents. No doubt this second question of the distress of relatives, friends, and parties through the publication of painful details arises in trials such as the Russell divorce suit, no less than at inquests and at the trial of criminals. At present the publication of the details of any trial is a matter for the discretion of the editor of each newspaper, but the privilege which protects him in publishing evidence given in a court of law would not be any defence in a prosecution for the publication of indecent or obscene matter. This must be taken into consideration by anyone who desires to see any new practice introduced. Such innovation apparently could only consist in one of two things. A judge might call attention to certain particulars in the evidence and direct that they should not be reported, when any infringement of such a direction could be treated as contempt of court. In the alternative a judge could be directed or empowered to exclude the public entirely from a particular trial, in his discretion, and to hear the case in camera. The former course, however, would divert the judge's attention from the matter in hand, the trial of the issues before him, and make him an editor of the evidence, and the latter would deprive those before the court of the public trial which is their right. It would also rob the public of that degree of protection which the open trial of practically all cases undoubtedly affords it. There has been protest, not confined to one judge, against the trial of incest cases in camera, and there is undoubtedly a reasonable public dislike for anything like privacy in our courts where it can be avoided. Nevertheless, in the Divorce Court evidence relating to alleged impotency is heard in camera in suits for nullity of marriage, and much of the evidence in the Russell case might fairly be classed with that given in suits for nullity. It may therefore be possible to curtail to some extent the hearing in public of definite classes of testimony, without interfering with the general principle of public trial, or relieving editors of responsibility with regard to evidence not taken in camera. The principle of public trial is no doubt right in the interest of litigants in general, however painful its result may be to individuals, because perjury and the enunciation of unsound opinion in the case of expert evidence are more likely to go undetected where the identity of witnesses and the nature of their evidence are concealed.

BEIT MEMORIAL FELLOWSHIPS FOR MEDICAL RESEARCH.

THE trustees of the Beit Memorial Fellowships have elected the following candidates to Junior Fellowships of the annual value of £350 for three years:—

Dr. Ernest Basil Verney, for research into the physiology and pathology of urinary secretion, at the Institute of Physiology, University College, London.

Dr. Frank Cook, for research on the neuro-muscular apparatus of the uterus and on pregnancy toxæmia, with special reference to the acidosis factor, at the physiological and pathological laboratories, Guy's Hospital.

Dr. John Lewis Rosedale, for research on the chemistry of normal and pathological tissues, with special reference to the protein and nuclein constituents, at the chemical laboratory of St. Thomas's Hospital.

Dr. Reginald Hilton, for research on the blood gases in various stages of pulmonary collapse produced by artificial pneumothorax, and the condition of the circulation in the collapsed lung, at the laboratory and wards of the professorial unit of St. Bartholomew's Hospital. (The first two months to be spent at the Laënnec Hospital, Paris.)

Dr. Arthur St. G. J. McC. Huggett, for research on the function of the placenta in relation to the passage of gases and other substances from the mother to the fœtus, and the cause of fœtal apnœa, at the Sherrington School of Physiology, St. Thomas's Hospital, and Brown Institute, London.

Dr. Victor Douglas Allison, for research into the nature and properties of a hitherto undescribed substance which has a strong bactericidal, bacteriolytic, and bacterio-inhibitory action, named lysozyme, at the laboratories of the Institute of Pathology and Research, St. Mary's Hospital, London.

The following Junior Fellows were elected to fourth-year Fellowships of the annual value of £400:—

Dr. David Keilin, for research on the life-histories of protozoa pathogenic to insects, and the life-history, anatomy, and physiology of insects, at the Molteno Institute for Research in Parasitology, Cambridge.

Dr. Ivan de Burgh Daly, for research into auriculo-ventricular block, at the Institute of Physiology, University College, London.

Senior Fellowships, of the annual value of £600 for three years, are available for junior and fourth-year Fellows elected on or after Jan. 1st, 1920. Inquiries should be addressed to Sir J. K. Fowler, hon. sec., Beit Memorial Fellowships, 35, Clarges-street, Piccadilly, London, W.

WE regret to announce the death, on July 23rd, in his eightieth year, of Sir Edward Malins, consulting obstetric physician to Birmingham General Hospital and late professor of midwifery in the University. He was for many years our Birmingham correspondent.

THE death is reported from Bournemouth, on July 25th, where he had long lived in retirement, of Dr. Arthur Ransome, F.R.S., consulting physician to the Manchester Hospital for Consumption, and formerly professor of public health at Owens College. His Milroy lectures in 1890 put him down as a foremost authority on the causes and treatment of consumption and he was the first recipient, in 1897, of the Weber-Parkes prize.

INDEX TO "THE LANCET," VOL. I., 1922.

THE Index and Title-page to Vol. I., 1922, which was completed with the issue of June 24th, is now ready. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2.

BRITISH MEDICAL ASSOCIATION:
THE GLASGOW MEETING.

THE annual meeting of the British Medical Association began on Friday, July 21st, when the Representatives assembled at 10 A.M. in the Bute Hall of the University of Glasgow, under the chairmanship of Dr. R. Wallace Henry. Admirable arrangements had been made in the hall for the session of a large body, while well-directed thought had been devoted to the provision of reading and writing-rooms and cloak-rooms. A good luncheon at a low figure could also be obtained in the Students' Union, in an adjoining wing of the University, so that no time was wasted over the midday break in the proceedings.

THE ANNUAL REPRESENTATIVE MEETING, FRIDAY, JULY 21ST.

The business of the morning session was largely formal and administrative. Sir William Macewen, the President, welcomed the Association to Glasgow. The annual report, balance-sheet, and financial statement of the Council were received and adopted, and Mr. Charles P. Childe, senior honorary surgeon, Royal Portsmouth Hospital, was elected President of the Association for 1923–1924.

The meeting approved and adopted, with certain amendments, the new articles and by-laws effecting a revision of the constitution and machinery of the Association contained in a report of the Council to the divisions and Representative Body which was published in the Supplement to the *British Medical Journal* of Dec. 24th, 1921.

At the close of the morning session Sir Donald MacAlister, Principal and Vice-Chancellor of the University, welcomed the Association to Glasgow on behalf of the University.

Professional Secrecy.

The afternoon session of Friday was mainly devoted to the discussion of professional secrecy. The direction of a close and keen debate can be seen by quoting the actual words of the reports under consideration. The debate commenced by a motion from the Chairman of the Central Ethical Committee, Dr. R. Langdon-Down, to rescind Minute 48 of the annual Representative Meeting, 1921, which minute was followed by an instruction to the Council to submit the same for future consideration at the next Representative Meeting. Minute 48, A.R.M., 1921, ran as follows:—

> That the Association use all its power to support a member of the British Medical Association who refuses to divulge, without the patient's consent, information obtained in the exercise of his professional duties, except where it is already provided by Act of Parliament that he must do so.

The literal interpretation of the minute seemed to promise that the Association would support *any* member who chose upon individual grounds to disobey an order of a judge, and it was felt by the Council that the Association would in this way be undertaking an unjustifiable responsibility. Dr. Langdon-Down accordingly moved:—

> That Minute 48 of the A.R.M., 1921, be rescinded, and that it be the policy of the Association to support in every way possible any member of the B.M.A. within the United Kingdom who, in the opinion of the Council, or the Central Ethical Committee acting on behalf of the Council, after due consideration of the circumstances, is deemed to have been justified in refusing to disclose any information he may have obtained in the exercise of his professional duties.

A long debate ensued, mainly upon old grounds, but in the course of speaking to various amendments two new points were made, which should be mentioned as, whatever the show of hands, they elicited support from the meeting. The first was that any relaxation of rigid adherence to the Hippocratic maxim in the witness-box would be particularly detrimental to the interests of women; the second was that the legal attitude in England was more opposed to the granting of exceptional privilege to the doctor than it was in Scotland.

Special Protection for Medical Witnesses.

Dr. Langdon-Down's motion was carried with very few dissentients, but recognising the feeling that the medical witness was insufficiently protected, he moved the adoption of the following recommendation of the Council:—

> That the annual Representative Meeting, 1922, express the opinion: That the proper preservation of professional secrecy necessitates a measure of special consideration being recognised for medical witnesses in courts of law above and beyond what is accorded to the ordinary witness.

Whereupon an amendment was moved by Dr. Charles Buttar:—

> That in the opinion of this meeting it is an essential principle of medical conduct that information obtained in connexion with the treatment of patients should not be divulged without the consent of the patient concerned.

On the suggestion of Dr. E. R. Fothergill (Brighton), the foregoing motion and amendment were combined and moved as an amendment in the following form:—

> That as in the opinion of this meeting it is an essential principle of medical conduct that information obtained in connexion with the treatment of patients should not be divulged without the consent of the patient concerned, the annual Representative Meeting, 1922, express the opinion: That the proper preservation of professional secrecy necessitates a measure of special consideration being recognised for medical witnesses in courts of law above and beyond what is accorded to the ordinary witness.

The amendment was carried as the substantive motion.

Medical Ethics: the Ethics of Consultation.

The remainder of the annual report of the Council under the heading Medical Ethics (see *British Medical Journal*, Supplement, May 6th, 1922) was approved, one paragraph dealing with professional secrecy having been withdrawn.

The following motion was then proposed by Dr. Fothergill, as an amendment to an existing rule in the Report on the Ethics of Consultation:—

> The attendance of a consulting practitioner shall cease when the consultation is concluded, unless another appointment is made, and no medical practitioner introduced to a family in consultation shall afterwards undertake sole attendance upon members of that family residing in the same house except with the knowledge and consent of the former medical attendant.

After a short debate, in which certain abuses only to be met by such a proviso were alleged, the motion was carried.

National Health Insurance.

The existing position of the approved societies in regard to the control of medical benefit was then brought under discussion by Dr. H. B. Brackenbury, chairman of the Insurance Acts Committee, who proposed the following motion:—

> That the Representative Body insists upon the continuance of the system of negotiating the actual terms of the contract of service which has prevailed since the coming into force of the National Health Insurance system—i.e., direct negotiations between the Government and the profession without the intervention of any third party; but will continue to welcome the coöperation of all those interested in the development of the best possible medical service for insured persons.

The motion was made on behalf of the Council and was carried nem. con.

The next Recommendation of the Council on the subject, also put forward by Dr. Brackenbury, ran as follows:—

> That the measure of success which has attended the experiment of providing medical benefit under the National Health Insurance Acts system has, in the opinion of the R.B., been sufficient to justify the profession in uniting to ensure the continuance and improvement of this system.

Many speakers joined in a debate upon the actual measure of success which has attended the institution of panel practice, and there was considerable difference of opinion expressed upon the point whether the institution of a State system was, at any rate now, the only alternative.

An amendment by Dr. John Stevens (Edinburgh) to the effect that the recording of a definite official

opinion of such a sort was premature "until a wide inquiry into the working of the Insurance Acts has taken place" was, however, lost, and eventually the motion was carried with the substitution for the penultimate word "this" of the words "an insurance." The successful motion stood as follows therefore:—

That the measure of success which has attended the experiment of providing medical benefit under the National Health Insurance Acts system has, in the opinion of the R.B., been sufficient to justify the profession in uniting to ensure the continuance and improvement of an insurance system.

A roll-call was demanded by 10 Representatives which resulted in 82 votes for and 21 against the motion.

SATURDAY, JULY 22ND.

The Representative Meeting was employed on the whole of Saturday in discussing the Report upon the Organisation of Voluntary Hospitals which was published in the supplement to the *British Medical Journal* of Feb. 25th, 1922.

The Hospital Policy of the British Medical Association.

Mr. Bishop Harman, chairman of the Hospitals Committee, moved the adoption of the Report, having before him upwards of 100 amendments to deal with. The Report was a particularly clear and precise document (vide THE LANCET, March 11th, p. 491), but the amendments were many of them in nearly identical terms, and yet carried in their wording references to different parts of the Report. Discussion was rendered difficult by the fact that the paragraphs could not always be taken in their printed order, and that the decisions on later points might, unless great care were taken, run counter in some measure to votes previously given. The chairman, and the chairman of the Hospitals Committee, managed to keep what had all the elements of a disorderly discussion in direct and comprehensible lines—no small feat. At the beginning of the debate amendments stigmatising the Report as revolutionary and detrimental to the interests of the profession were lost, and it was decided to consider the document paragraph by paragraph.

The following paragraph was carried nem. con., the position of voluntary hospitals as defined in the Report having been subsequently amended:—

The voluntary hospitals have grown up upon a general understanding between the subscribers, the boards of management, and the members of the honorary medical staff that both funds and services were placed gratuitously at the disposal of those members of the community unable to pay for adequate medical treatment. This understanding for gratuitous service was mutual and reciprocal, and the general tendency now existing for the exaction of payment, however small, from the patient, necessarily modifies the original understanding and fundamentally alters the basis of the relationship between the honorary medical staffs and the subscribers. [The term "Medical Treatment" throughout this document includes any and all of those services which can be and are rendered by a registered medical practitioner—e.g., examination, whether clinical or laboratory, advice, consultation, and the application of remedies whether medical, physical, or operative.]

Classification of Hospital Inmates.

But the next paragraph of the Report led to a keen debate in which alternative classifications of hospital patients were put forward:—

The Association recognises a dual policy as regards the voluntary hospitals: (*a*) that the purely charitable side should be continued wherein the whole cost of the maintenance of indigent patients is met by the gratuitous contributions received by the hospital and on whose behalf the services of the honorary medical staffs are given gratuitously; (*b*) that other patients who are not indigent may be received for treatment at voluntary hospitals when they cannot pay for or cannot obtain adequate treatment elsewhere and that for them payment should be received by the hospital either from the patients themselves or on their behalf from the authority or body referring them to the hospital, and that on account of their treatment some method of remuneration of the honorary medical staff should be arranged.

This also was carried by a necessary two-thirds majority, a large number of the amendments moved and arguments employed being afterwards found valid in discussing the question of the formation of staff funds.

The paragraph dealing with this subject in the Report had eventually to give way to an amended form, put forward by Dr. Brackenbury, running as follows:—

In the event of decisions being taken which would lead to patients (other than private patients referred to in Sections IX. (*a*) and (*b*)) paying, in part or in whole, hospital charges (1) where such payments are in any part made by rate-aid or State-aid, and (2) where such payments in other cases are of an amount exceeding the cost of hospital maintenance and accommodation, such charges should be considered to include payment towards maintenance and treatment, and a percentage of all such payments should be passed into a fund which is at the disposal of the honorary medical staff of that hospital.

This, as a substantive motion, was carried by 64 to 55, and its adoption led to the automatic withdrawal of a large number of amendments.

Payment of Staff: Definition of Voluntary Hospital System.

A further amended paragraph was passed whose discussion led to an examination and re-examination of the arguments for the payment of hospital staffs:—

When the board of management of a voluntary hospital enters into a financial arrangement with a public authority, an employer of labour, approved society, insurance company, or under a contributory scheme or otherwise for the reception of patients, such arrangement should be taken to cover the cost of maintenance and treatment and a percentage of all such receipts should be passed into a fund which is at the disposal of the honorary medical staff of that hospital.

A long debate ensued upon the definition of a voluntary hospital, and many views, some of them whimsical and amusing, were given as to what qualities were essential in a voluntary hospital. In the end the following remained the Representative Body's definition:—

The Association maintains that the essence of the voluntary hospital system is the independent and voluntary management, and that this is not necessarily related to the conditions of service of the medical staff.

Sources of Hospital Funds.

Mr. Bishop Harman then asked the meeting to approve of the following paragraph, setting out the sources from which funds are received from voluntary hospitals:—

Funds may be received by hospital authorities from two sources: (*a*) gratuitous contributions—i.e., contributions from whatever source to which no such conditions are attached as would involve the obligations of service on the part of the hospital but are charitable contributions to be expended at the discretion of those to whom the management of the hospital is entrusted; and (*b*) contributions for services rendered or to be rendered—i.e., contributions made under either by patients themselves or on their behalf for hospital benefit.

This paragraph was carried, as was the subsequent one, after amendment as follows:—

Gratuitous contributions to hospitals by employers of labour or by employees should not be treated as the payment of premiums for insurance against the cost of maintenance and medical treatment for sickness or accident, nor as entitling the contributors to claim hospital treatment either for themselves or for persons nominated by them, but as charitable contributions to be expended at the discretion of those to whom the management of the hospital is entrusted.

Categories of Hospital Patients.

Interesting interchanges of opinion took place upon contributory schemes for the provision of hospital benefit, upon the ticket system of admission, and upon the considerations that should prevail as to the suitability of patients for hospital treatment, and the following paragraph of the Report was eventually carried, dealing with the categories of patients for in-patient treatment:—

Patients admitted to voluntary hospitals should be classed under the following groups—"Free" (Indigent), "Tariff," and "Private":—

(*a*) *Free* (*Indigent*) *Patients.*—Those certified by the almoner or other officer of the hospital as unable to contribute in any way towards their maintenance and treatment.

(*b*) *Tariff Patients.*—Those paying, or for whom is paid, in part or in whole, the tariff cost of maintenance and treatment; this group includes all those for whom any payment has been made by (i.) public authorities, (ii.) approved

societies, employers of labour, insurance companies, or other bodies, or (iii.) under any contributory scheme; and

(*c*) *Private Patients.*—Those who pay for special accommodation and who arrange for medical treatment fees independently of the hospital.

An In-patient Tariff.

Finally, an important debate put on record the views and policy of the British Medical Association in respect of a tariff for in-patients. The following motion, including verbal amendments, which the chairman of the Hospitals Committee was permitted to make, was carried:—

When the board of management of a voluntary hospital enters into a financial arrangement with an employer of labour, a public authority, approved society, insurance company or any other body, or under a contributory scheme for the reception of patients, such arrangements should be taken to cover the full cost of maintenance and treatment, and should provide as follows:—

(*a*) Payments made for tariff in-patients should be for work done based upon a tariff of fees agreed upon from time to time between the contracting parties; such tariff of fees making full allowance for provision of hospital accommodation, maintenance, and payment of medical staff.

(*b*) The accounts of the hospitals should be kept so as to show the cost of this hospital benefit.

(*c*) Inability to pay for adequate treatment as a private patient, whether in the hospital or outside, should be the consideration for the admission of all tariff patients for hospital treatment.

(*d*) All persons, whether insured under the National Health Insurance Acts or not, whose income from all sources does not exceed the limits of a specified scale, should be eligible for hospital benefit on tariff rates. The hospital should reserve its right to challenge admissions. The following maximum scale is suggested, subject to economic and local variations and to periodic revision:—

CLASS 1.—*Limit of Income* £200.
- (*a*) Single persons over 16 years of age.
- (*b*) Widow or widower without children under 16 years of age.

CLASS 2.—*Limit of Income* £250.
- (*a*) Married couples without children under 16 years of age.
- (*b*) Persons with one dependent under 16 years of age.

CLASS 3.—*Limit of Income* £300.
- (*a*) Married couples with a child or children under 16 years of age.
- (*b*) Persons with more than one dependent under 16 years of age.

(*e*) For those persons whose income places them beyond the agreed specified scale for tariff patients arrangements may be made to receive them as private patients.

(*f*) The ordinary hospital routine of admission, transference, and discharge of patients should not be modified for tariff patients, nor should any preferential treatment be given to them.

(*g*) No tariff patient should be admitted without the recommendation of the attending practitioner, except in the case of emergency.

Election of Officers.

During the meeting it was announced that Dr. G. E. Haslip had been re-elected Treasurer of the Association for the period 1922–25, and that for the period of 1922–23 Dr. R. Wallace Henry had been elected Chairman and Dr. H. B. Brackenbury Deputy-Chairman of the Representative Body.

LONDON RESOLUTIONS ON A STAFF FUND.—The following resolutions have been passed as a result of a conference between representatives of the medical staffs of the following London teaching hospitals:—St. Bartholomew's, St. George's, Guy's, King's College, St. Mary's, Middlesex, St. Thomas's, University College, Westminster, and the Royal Free.

1. That under present conditions, in the case of patients who contribute towards, but pay not more than, the whole cost of their maintenance in a voluntary hospital, it is undesirable that any portion of such contribution should be allotted to a staff fund. (*Adopted with no dissentient.*)

2. That when the State, a municipal or other public body pays towards the accommodation, maintenance and treatment of a patient, or group of patients, in a voluntary hospital, a percentage of such moneys should be allocated to a staff fund. (*Adopted, Guy's, Middlesex, and University College dissenting.*)

3. That when a special clinic is held by a member of a hospital staff for the treatment of patients sent by the State, a municipal or other public body, the member of the staff taking such a clinic should be adequately paid. (*Adopted, Guy's dissenting.*)

By the term maintenance in the first resolution is understood the cost per bed as calculated for the purpose of the return made by each hospital to the King's Fund.

INTERNATIONAL HYGIENIC AGREEMENT:

PUBLIC HEALTH QUESTIONS AT THE LEAGUE OF NATIONS COUNCIL.

Report of the Health Committee.

DURING the session of the Council of the League of Nations last week at St. James's Palace, presided over by Mr. Quinones de Léon (Spain), a report was presented on the work of the third session of the Health Committee of the League, which had been held in Paris on May 11th–16th. This report related among other matters to the progress being made with research work on the standardisation of sera which had been decided on at the International Conference on the subject held at the British Ministry of Health in December last.[1] The research work initiated by the Conference is progressing favourably. In the case of diphtheria antitoxin, it is hoped that the international standard will shortly be finally settled by the adoption of the unit used in America and Germany. An understanding in regard to an international unit for tetanus seemed also in sight. Progress is being made with the comparative study of the serodiagnosis of syphilis. A subcommittee had investigated the information available from the Scandinavian countries, Belgium, and Switzerland, in regard to the quantities of morphine, cocaine, and other dangerous drugs which are legitimately required for medicinal purposes. This inquiry is continuing. The Health Committee had considered the position of different countries in regard to the adoption of the standard nomenclature of causes of death. It appeared that the international agreement on the subject which was drawn up in Paris in 1920 had from various accidental circumstances not been officially circulated, and that Belgium and some other important countries have not on this account begun to classify deaths in the present decennium according to the last revised nomenclature. The Health Committee had arranged to expedite the official publication, and recommended the Council to impress on all countries which are members of the League the importance of adopting the revised code. Other matters considered included the development of the work undertaken at Geneva for the dissemination of news relating to epidemics. The special information about typhus and cholera in Eastern Europe which the League's Epidemic Commission obtains is now regularly published in fortnightly bulletins. It was decided that this work should be continued and that provisionally the duties of the health organisation of the League as regards public health intelligence and sanitary statistics should be mainly in the nature of investigations and studies of special problems, and the question of a larger and more general service for epidemiological intelligence was deferred. Proposals were made for inquiries as to the spread of sleeping sickness and tuberculosis among native populations of Equatorial Africa, and the Health Committee was considering a proposal by Dr. Miyajima for the investigation of epidemics in Manchuria. The Committee had considered the recommendation of the Assembly of the League to add to their number a "medical woman experienced in public health matters," and recommended the nomination of Dr. Josephine Baker, Director of the Bureau of Child Hygiene, of New York City. In addition, Dr. Carlos Chagas was suggested as a South American member. Important sections of the report were devoted to the inquiry of the recent Commission on quarantine measures in the Near East[2] and to the work of the Epidemic Commission, and the resolutions of the Warsaw Conference relating to epidemics in Eastern Europe.

---

[1] THE LANCET, 1921, ii., 1331, 1339.
[2] THE LANCET, July 1st, 1922, pp. 25, 32.

Discussion; Eastern Europe Epidemics; the International Sanitary Convention; and the Contributions from the Rockefeller Foundation.

On Thursday afternoon, July 20th, at one of the public sessions of the Council, Mr. Viviani (France) presented a report on the document above referred to, which was accepted. He drew attention to the confusion which at present exists in the international arrangements relating to the prevention of epidemic diseases in the Near East and proposed a resolution, which was adopted, congratulating the Near East Commission of the League on its important contribution to the solution of this subject in its relation to the revision of the International Sanitary Convention of 1912. The Council decided to draw the attention of the Governments which are members of the League to the great importance of the International Sanitary Conference which the French Government proposes to convene to revise this Convention, including those parts of it which relate to the Near East. The report of the Near East Commission was formally presented to the Office International d'Hygiène Publique, and the Secretary-General was authorised to put the technical services of the League of Nations at the disposal of the French Government when the International Sanitary Conference is held. Mr. Viviani also referred to the great importance of action by the Governments represented at the Warsaw Conference to give effect to its recommendations in regard to the Russian epidemics. He stated also that the Rockefeller Foundation had expressed its willingness to put $30,000 yearly for five years at the disposal of the Health Organisation of the League for a service of epidemiological and statistical information, as well as a sum of $60,000 a year for three years for assisting the interchange of public health officials of different countries. He proposed that the Council should express its gratitude to the Rockefeller Foundation for its collaboration and should remit the proposals to the Health Committee to work out detailed schemes for the administration of these sums.

Mr. H. A. L. Fisher (Great Britain) emphasised the seriousness of the reports received in regard to the spread of epidemics in Russia. He was informed that cholera was very seriously prevalent over wide areas in Southern Russia and in the Ukraine, and that the news of its spread is becoming steadily worse. The programme of the Warsaw Conference required the raising of an immediate sum of £1,500,000 by the contributions of the Governments represented at Genoa. It was very desirable that this programme should be carried out, but the chances of obtaining the sum referred to in present economic circumstances were not encouraging. Nothing, however, could be more regrettable than to close down at this juncture the admirable work of the League's Epidemic Commission. The British Government took the view that a relatively small sum, if made available at once, would enable a very material and important part of the Warsaw programme to be carried out. This part of the programme related primarily to the frontier measures, which should be taken not only in Poland and in the border States but also on the Russian side of the boundary. It was also very necessary to deal with the prevention of the spread of infection by shipping from the cholera-infected ports of the Black Sea. He did not, however, wish to restrict the utilisation of any available funds too rigidly and everything possible should be done within Russia itself to assist in minor but important ways, like the supply of drugs in Russia on important lines of communication. He emphasised the impossibility of application for a grant being made to the British Parliament even for the smaller programme he referred to, in the absence of assurances that similar action would be taken by other Governments.

The resolutions relating to the Near East Commission and the revision of the International Sanitary Conference of 1912 were of special importance. The British view was that the revision of this Convention is becoming a matter of much urgency, not only in the interests of good public health administration but also in the interests of commerce. It is not considered desirable or necessary that the assembly by the French Government of the International Sanitary Conference to revise this Convention should be delayed on account of political uncertainties in the Near East. That part of the Convention which relates to sanitary and quarantine measures in the Near East could be revised on its technical basis without waiting for the conclusion of a new Treaty of Peace.

In view of the fact that the proposals for work in collaboration with the Rockefeller Foundation are being remitted to the Health Committee of the League, it seemed inadvisable for the Council to specify now too definitely the exact purposes to which this assistance will be applied. Mr. Viviani accepted this view, and agreed to a modification of the resolution for the purpose. At the same time he considered that the Council should not approve new proposals from the Health Committee which involved additional expenditure on the League. If the money came from outside sources the matter was different.

The report and resolutions were then adopted.

Representation of Germany on the Health Committee.

On Friday, July 21st, the Council of the League also adopted a report from the Secretary-General on the Warsaw Conference resolutions which included an expression of appreciation to the American Red Cross for a gift of £5000, and a recommendation to the Health Committee to coöpt a German member.

THIRD INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE.

(*Concluded from p. 198.*)

THE first session of the Congress on Tuesday, July 18th, was devoted to a discussion on some of the historical aspects of epidemic and endemic disease. Dr. Tricot-Royer, of Antwerp, read a paper on Les ordonnances du Magistrat d'Anvers contre les maladies contagieuses. Dr. A. Cavvadias, of Athens, followed with a paper on the Cult of Asklepios and Medical Science, in which he pointed out that the cult, dealing largely in miraculous cures, bore no relation whatever to rational medicine, the two systems developing independently and owing nothing to each other. Prof. W. R. Simpson spoke on the Preventive Aspect of Endemic Disease in Ancient and Modern Times.[1] Mrs. Singer drew attention to a thirteenth-century Latin translation of the Sixth Book of "The Epidemics." Prof. Jeanselme contributed a paper which, in his absence, was read by Dr. Laignel-Lavastine on the relationship existing on the one hand between plague and famine—particularly a dearth of cereals—and on the other hand between plague and floods or earthquakes, any of these circumstances leading to the rats being compelled to forsake the sewers. Dr. Torkomian, of Constantinople, emphasised the claims of Armenia to have been one of the earliest countries to practise vaccination against small-pox on the introduction of this method from China, where it had been known from time immemorial. In a subsequent paper Dr. Torkomian gave the evidence for believing the ancient Armenians to have been possessed of a rudimentary knowledge of anatomy.

The second and third sessions were devoted mainly to the history of anatomy, several papers of extraordinary interest being read, many of them illustrated by epidiascope slides. Among these must be mentioned a paper by Mr. W. G. Spencer on the "Epitome" of Vesalius on vellum, in the British Museum Library, and Dr. T. Wilson Parry's paper on the collective evidence of trephination of the human skull in Great Britain during mediæval times, illustrations being shown of several specimens associated with prehistoric trephination in Great Britain, as well as cases of posthumous trephination. Dr. F. K. Lander, who took for her subject Women as

[1] This paper appears on p. 258 of this issue of THE LANCET.

Anatomists, gave many instances of the study of anatomy by women from very early times, some taking it up in a dilettante way, others more seriously as surgeons, midwives, philosophers, or pure anatomists. Dr. E. B. Krumbhaar traced the early history of anatomy in the United States—a comparatively easy matter, as he pointed out, in so young a country—from the time of Thomas Wootton, the first physician in the first permanent settlement in the country. The difficulty of procuring anatomical material was even more acute in America than in the rest of the civilised world, although the need for this practical method of learning the structure of the body seems to have been clearly recognised from the earliest times. Dr. Laignel-Lavastine, speaking on "L'anatomie humaine symbolique," showed that the ancient mediæval symbolism as exemplified by the astrologers, cheiromancers, and cabalists was not without its uses, in that it was the foundation on which learning was to be built, thus facilitating the transmission of the scientific knowledge laboriously acquired by the observation of nature.

The papers on Thursday included one by Dr. Tricot-Royer, Autour de la leçon d'anatomie de Sporckmans; and one by Dr. Laignel-Lavastine and M. J. Vinchon on Les observations psychiatriques de Jean Schenck. Dr. N. G. Horner gave an account of John Westover of Wedmore, a West Country practitioner of more than 200 years ago, with extracts from his journal painting an excellent picture of English rural practice in the reigns of James II. and William and Mary. Dr. S. K. de Waard read a paper on "Les idées psychiatriques des juristes romains," in which he pointed out how far these ideas were in advance of those commonly held at that time, and how sensible and humanitarian were the laws framed for dealing with the insane. Dr. Donald Campbell, discussing the significance of the Arabic MSS. of Galen's work on anatomical administration, suggested that the preservation by the Arabians of this monument of Greek medicine when Books 10 to 15 would otherwise have been totally lost, indicates that the Muslims did not completely destroy the second great library of Alexandria, as is usually stated to have been the case. Prof. J. A. Lindsay spoke of medicine as viewed by Plato and Aristotle, pointing out that the Greeks were the first to study medicine as a lay subject and in the lay spirit, to disentangle it from magic, to practise a rational clinical observation, and to propound a sound therapeutic. Of the two great philosophers, Plato, while much interested in medicine, contributed little towards it, although we owe to him two valuable lessons—the importance of the psychological factor in disease and its treatment, and the foundation of eugenics. On the other hand, Aristotle, who was an indefatigable collector and observer, contributed much to medicine, laying as he did the foundations of zoology, comparative anatomy, and embryology. Mr. C. J. S. Thompson traced the history of "Hiera Picra," one of the oldest medicaments known, having survived for a period of at least 2000 years—a remedy which, in its present form of aloes and canella, is still in common use in many European countries at the present day.

Among the papers read at the last two sessions of the Congress were two contributed by Dr. E. Wickersheimer, "Robert Grosseteste et la médecine," and "Henri de Saxe et le 'De secretis mulierum'" in the latter of which Dr. Wickersheimer discussed the authorship of this famous work, and gave his reasons for rejecting the claims of Henri de Saxe, to whom the authorship is usually ascribed. Dr. H. E. Sigerist spoke on the conflict between the sixteenth-century physician and antiquity, and Dr. J. D. Van Gils on the doctors of Molière and Shaw. Veterinary medicine was the subject of three papers by M. H. J. Sevilla, Major-General Sir F. Smith, and Prof. F. J. Cole respectively. Dr. A. F. de Alcalde in his paper, De la pratique de guèrir, d'après les idées du Colegio Medico de San Rafael, de Vallodolid, gave an account of the Medical College of St. Raphael from its foundation in 1628 by Don Miguel Antonio Polanco, an institution which, although it came to an end 20 years later with the death of its founder, exercised a profound influence on the medical teaching of the time. L'art dans la pharmacie italienne du XV. siècle was the subject of a paper by Prof. Castiglioni, who showed that in the fifteenth century medicine hitherto mainly theoretical became increasingly practical, this change being reflected in the pictures and plastic art of the day. By means of a most important collection of iconographical documents Prof. Castiglioni illustrated the history of Italian pharmacy, which was the starting-point of one of the most flourishing of the industrial arts, that of faience. Slides were shown of a number of old pharmaceutical vessels, the lecturer pointing out the main characteristics of the different periods.

It has only been possible here to give the briefest outline of some of the more representative communications made to a Congress at which more than 60 important papers were read.

THE WORK OF THE SCOTTISH BOARD OF HEALTH IN 1921.

WITH commendable promptitude, an account of the work of the Scottish Board of Health during its third year of being, is to hand (Cd. 1697). An indication of the current financial stringency is the fact that the price of this report is 10*s.* net, which for 365 pages of rather closely printed matter is, perhaps, not exorbitant, though it is much higher than would have been charged in ante-bellum years.

Amalgamation of Control of Public Health Services.

The report is divided into eight sections, dealing respectively with public health, housing and town planning, National Health Insurance, Poor-law, local government, the prevention and relief of distress, old age pensions and pensions to blind persons, and miscellaneous matters. Evidently a number of these subjects are not logically separable, inasmuch as, for better or for worse, the British system of government has grown up to meet needs as they arose and has itself not been manufactured on a strict logical basis. School medical administration does not appear as a separate main heading; and the reason is forthcoming when we find in the table of contents that under the general heading of public health, there occur the following chief sub-headings: Infectious diseases, sanitary administration, maternity and child welfare, nursing, school health administration, the Highlands and Islands (Medical Service) Fund, welfare of the blind, inspection and supervision of food. The Board of Health for Scotland has apparently succeeded to a greater extent than the Ministry of Health in England in securing central unification of the school medical and other public health services.

Board v. Ministry.

Another feature of distinction between the English and Scottish system is the perpetuation in the Scottish Board of Health of the arrangement which held good under the Scottish Local Government Board. There is a real Board, and not merely a Minister who, subject to Parliamentary control, is an autocrat. The Scottish Board has become larger owing to the inclusion of Insurance Commissioners. It now consists of six members, Sir Leslie Mackenzie being its medical member and Mr. J. W. Pratt its Vice-President. Were candid expression of opinion possible, it would be interesting to learn from the medical member of the Scottish Board and the Chief Medical Officer of the Ministry of Health the relative merits, in the interest of the public health, of the two systems, in one of which the medical member in matters of importance is heard in conference with his colleagues, and in the other this conferring together may or may not be secured.

Economy or Parsimony.

The prefatory portion of this report shows some appreciation of the fact that economy in public health

matters, unless carefully safeguarded, may be extravagant of health and vitality. "Although we have spared no effort to economise, we have been conscious of the peculiar danger of cutting down services that are manifestly improving the nation's health." The possibility is realised that indiscriminate economy in one year may create the necessity for swollen expenditure in following years, and that much of the benefit from past expenditure may be lost for want of a little judicious current spending. Scotland, like England, has suffered gravely from unemployment, and this has greatly increased expenditure on the Poor-law side of the Board's work. The effect of the continued industrial distress, as well as of slackening of public health work, is regarded by the Board as a cause for fear in relation to the nation's health. Demands for sickness benefit have increased, much of this being attributable to lowered vitality as a result of unemployment. On the other hand, the decrease in infant mortality and in tuberculosis are regarded as encouraging factors. In regard to the latter it is somewhat pitiful to read that "the main consideration . . . . during the year in our administration of the services for the treatment of tuberculosis has been one of considered and consistent economy. Our policy has been to restrict expenditure to what is immediately and urgently necessary in the interests of public health." Thus new institutional provision has been curtailed or stopped, no new dispensaries have been started, and so on. If this action were taken because other and better arrangements for treating and preventing tuberculosis were being made this (perhaps necessary) attitude would not call for passing comment.

Infectious Diseases.

During the year 13,456 new cases of *venereal disease* were treated, and the number of attendances per patient showed marked increase, pointing to increased success of the clinical officers in persuading patients to continue till medically discharged.

On *encephalitis lethargica* the Scottish Board holds views which may not receive general support. In view of its obscure nature, the difficulty of diagnosis, its low infectivity, and the present ignorance of any specific treatment, it was not considered that any useful purpose would, for the present, be served by making this disease compulsorily notifiable in Scotland, as it is in England, except when a given local authority desired this. The considerations adduced above are all weighty, and no considerable statistical importance attaches to figures of notifications of this disease, in view of its dubious diagnosis. But that such notifications have epidemiological value, in opening up possibilities of investigation of the disease, can scarcely be doubted.

Notifications of Infectious Diseases.—On p. 36 is given a summarised statement of notifications of various infectious diseases for counties and burghs in the aggregate. A complete tabulated statement of these diseases for each sanitary area, such as has been published annually for about a dozen years in England, would have considerable current and increasing epidemiological value.

Infant Mortality.

On the other hand, we welcome the valuable detailed table of infant mortality in counties and certain burghs given in an appendix on p. 250 of the report. This table might naturally be looked for in the annual report of the Registrar-General for Scotland, and we therefore draw special attention to it. Variations in infant mortality in the first week of birth occur between 28·7 and 16·7, and in the next three weeks between 20·5 and 10·9, indicating the large extent of preventable mortality even at this early stage of infancy. For 1922 and subsequent years arrangements have been made for compilation and publication of these figures by the Registrar-General.

Supply of Food and Milk.

Attention is drawn to the exceptionally heavy demands for supply of nutriment in connexion with the maternity and child welfare services, owing to the general distress; and it is observed that the very magnitude of the provision made has created the impression that the maternity and child welfare scheme is mainly a relieving agency and has thus obscured its primary purpose—namely, the prevention and treatment of illness and the instruction of mothers. The opinion is expressed that the arrangements for emergency supplies of food and milk on a large scale must be regarded simply as measures for relief of distress, and that they should be withdrawn from association with maternity and child welfare schemes.

The Highlands and Islands Medical Service.

This interesting experiment in State provision of medical services in areas in which otherwise these services would not be available, was responsible for an expenditure of over £225,000 last year. This experience, as years go on, will form an interesting and valuable chapter in State medicine. An experience of considerable epidemiological interest is quoted. On one of his two visits to St. Kilda in 1921, a member of the medical staff of the Board found that the epidemic of whooping-cough then prevailing had been preceded by a similar epidemic 29 years earlier. In the recent epidemic not one person over 29 developed whooping-cough, but of the 40 inhabitants under that age all but four were suffering from it. Of these four one had already had whooping-cough, and the other three had recently returned from a holiday in the mainland. The rarity of second attacks may be inferred from this outbreak.

The remaining sections of this report contain much matter of general interest, and the reader is invited to read the report itself, which contains a good review of very multifarious medical and sanitary work.

ROUMANIA.

(FROM OUR OWN CORRESPONDENT.)

"Nervousness" in School-children.

Dr. Schiff, Director of a large children's hospital in Oradea, in a recent lecture to medical men in that town, stated that, according to the findings of Roumanian public school authorities after an inquiry extending over five years, one in every three school children is a victim of some form of nervous disorder. This state of affairs is attributed to bad housing conditions (overcrowding, &c.), bad food, unhealthy city air, constant noise, late hours permitted by parents, and the kinema habit. The nervous disorders found in three years' investigation among 300 school-children in Roumania were chiefly of two types—sluggishness and mental depression, with tendencies towards melancholia, or uncontrollable nervous twitchings. It is now recognised that everything possible must be done in the public schools to counteract the nervous effects of city life. One school principal, who has made a careful investigation and intends to publish a monograph on the subject, declared that parents have no conception of the appalling increase of nervous complaints among children at the present time.

Paralysis Agitans after Trauma.

Dr. Schmidt, of Trgulmuresch, stated at a recent medical meeting that traumatism is seldom an active ætiological factor in the production of paralysis agitans. He had under his care several thousands of soldiers, and described the results of careful observation of 38 cases among these men, in 7 of which he claimed that the disease could be distinctly traced to an injury. The characteristic symptoms appeared in each case shortly after the injury; in a few cases where indefinite signs existed previously, they grew rapidly and progressively worse soon after the trauma was inflicted. The clinical picture did not vary much in the two classes of case, but where an injury was assumed to be the cause the disease usually first appeared in the injured limb. In comparatively young persons who were perfectly healthy before

injury, the latter can with certainty be put down as the cause for the disease, for in these cases age can be excluded as a predisposing factor.

Laryngeal Tuberculosis and Pregnancy.

During a discussion lately held by the Biharmegyei Medical Society, Dr. Edelmann contended that the association between laryngeal tuberculosis and pregnancy was sufficiently intimate to warrant the induction of labour in the presence of tuberculosis of the larynx. He reported two cases where even this radical procedure failed in its effects; the disease progressed, the patients dying within a few weeks after delivery. In one case labour was induced during the eighth month, in the other during the sixth. In connexion with two similar cases lately reported from another source, Dr. Edelmann believes that the interruption of pregnancy is of no value unless done during the early months, and that women afflicted with tuberculous laryngitis should be warned of their danger and sterilisation advised.

An Effort to Decrease Infant Mortality in Bucharest.

The Board of Sanitation has issued explicit directions for the care of infants during the summer. Much is done by charitable citizens and institutions in the way of providing excursions to the country for the sick children, but it is impossible for more than a small proportion of the infants to get fresh air. It is, however, practicable to see that every family is properly instructed in the rudiments of nursery hygiene and sanitation, and organised effort in this direction has led the Board to distribute circulars containing instructions as to breast-feeding, milk-supply, summer diet of infants, cleanliness of bottles and vessels, &c., with a note that when a baby is ill advice must be sought immediately, not from neighbours, but from a physician.

July 12th.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Commdr. G. Gibson is placed on the retd. list, with rank of Surg. Capt.

ROYAL ARMY MEDICAL CORPS.

The undermentioned Majs. (temp. Lt.-Cols.) retain their temp. rank whilst specially empld.: J. Mackenzie and T. H. Gibbon.

Capt. H. G. Hobson relinquishes the actg. rank of Maj. and is secd. for service under the Foreign Office.

Lt.-Col. St. J. B. Killery retires on retd. pay.

Maj. J. W. Houston relinquishes the temp. rank of Lt.-Col. on ceasing to be specially empld.

Maj. and Bt. Lt.-Col. C. G. Browne is placed temp. on the half-pay list on account of ill-health.

Capt. J. S. Levack retires, receiving a gratuity.

Col. Lancelot P. More, late R.A.M.C., retires on retd. pay on account of ill-health.

MILITIA.

Maj. K. B. MacGlashan relinquishes his commn. and retains the rank of Maj.

Capt. A. J. Brown is empld. with the R.A.F.

ROYAL AIR FORCE.

E. E. Isaac (Capt., R.A.M.C.) is granted a temporary commission as a Flight Lt.

INDIAN MEDICAL SERVICE.

The King has approved the following promotions: Capt. C. Newton-Davis to be Maj.; Lieut. Gangandrum Venkalaswamy Ram Mohan to be Capt.

The King has approved the retirement of Lt.-Col. H. B. Foster, M. H. Thornely, E. V. Hugo, and F. T. Thompson.

The undermentioned officers are appointed Hon. Surgs. to the King: Maj.-Gen. B. H. Deare, vice Maj.-Gen. the Hon. W. H. B. Robinson (decd.); Col. H. A. Smith, vice Col. J. Garvie (retired).

Public Health Services.

LONDON COUNTY COUNCIL.

Dental Inspection of School-children.—Replying to Mr. Blake, who drew attention to the Board of Education's report to the effect that "as regards dental work London is by no means completely covered," Sir Cyril Jackson, at last week's meeting of the London County Council, said that the children in all schools were inspected by the school doctors. Dentists also inspected in the majority of cases, but 126 Council schools and 117 non-provided schools were not inspected by dentists. At the moment he was unable to say what it would cost to provide additional inspecting dentists for the remainder of the schools.

Residential Treatment of Tuberculosis.—Captain Warburg, chairman of the Public Health Committee, also in reply to a question, stated that the Council's tuberculosis scheme for London is, on the whole, working well. With a view to increasing efficiency, conferences were held at regular intervals with the Ministry of Health. At present, there were 2069 patients, including 404 ex-Service men, receiving residential treatment. During the summer months, the demand for beds was always much greater than during the winter months. The average waiting period was about three weeks; during the winter it was generally only a matter of two or three days. In the case of children, the waiting period for surgical cases had been reduced by the recent opening of the hospital at Heatherwood, Ascot.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Reading.

THE Census revealed a lower population than anticipated, and the estimated population for 1921 is 92,600. Dr. H. J. Milligan reports that the death-rate, 10·7, and the infant mortality-rate, 60·2, in 1921 are the lowest ever recorded; that scarlet fever, though epidemic, was of a mild type and caused no deaths, while diphtheria, also epidemic, gave rise to many severe illnesses. The death-rate from pulmonary tuberculosis showed a very slight increase. Reading was not affected unfavourably by the hot summer, and the death-rate from diarrhœa, &c., under 2 years was only 8·9, as compared with 15·5 for England and Wales. A scheme is in hand to provide nursing for certain of the insured population by the use of surplus funds of some of the approved societies. The number of Reading patients attending the V.D. clinic shows a decline as compared with the previous year. Dr. Milligan points out that half of the infant deaths occurred in the first four weeks of life, and that any reduction in these means more attention to the expectant mother. The ante-natal clinic under Dr. Agnes Bernfeld has just concluded its first complete year, and showed a satisfactory record of 247 new patients. There were no deaths from puerperal fever, and only one from an accident of childbirth, giving the satisfactory rate of 0·5 per 1000 births. Of 13 notified cases of ophthalmia neonatorum, one case has resulted in the permanent damage, perhaps the total loss, of one eye. Dinners to mothers cost 11*d.* per meal, and did not prove popular. A daily attendance of 25 at the beginning of the year fell to five at the end of the year. The principal difficulty was the inability of the mothers to leave their homes in the middle of the day. The grading of milk has been adopted. One Reading farmer has a licence for producing grade "A" certified milk, and two dealers have licences to sell the same grade of milk produced outside the borough. Four farmers in the neighbourhood have licences for grade "A" milk, which is on sale in the borough at ordinary market prices. It now rests with the consumers, says Dr. Milligan, to encourage those farmers who have shown such enterprise and whose article is thus guaranteed. On the other hand, the result of milk prosecutions is not encouraging. Five

prosecutions resulted in one fine of £1, and this in spite of the fact that in three of the five cases the deficiency in the non-fatty solids ranged from 12·7 to 17 per cent. The house shortage remains acute.

Swindon.

Dr. Dunstan Brewer, after pointing out how favourable the statistics have been in a year (1921) when the meteorological conditions seemed more likely to produce a high death-rate and a high infant mortality-rate, proceeds to review the arrangements made in Swindon for applying the principles of preventive medicine to individuals. Only about 25 per cent. of the expectant mothers become known to the health department. Swindon has an inadequate maternity home, containing only two beds, but it is hoped that a joint home containing six beds for the borough and five for the county will be opened shortly. 80 to 90 per cent. of the infants are brought to the centres, but very few of the children from 2 to 5 years old. The arrangements for dealing with the school-children are fairly complete. The town has outgrown the sanitation, which it inherited from the combination of two urban districts. The reconstruction of the sewage works and the extension of the water-works are in hand, and the abolition of the canal, one of the great nuisances of the district, will follow. During the drought the Great Western Railway was able to help by a gift of some 220,000 gallons per day from their supply at Kemble. The shortage was accentuated in August by the bursting of the chief main from the water-works to the reservoir. It was feared that the use for domestic purposes of the polluted canal water might cause trouble, but there was no evidence that it did so. The scarcity of houses continues. As regards dilapidations left over from the war years, it is hoped, within two years, to bring up the housing to the pre-war standard. Dr. Brewer is emphatic that school inspection, by securing early treatment, is abolishing crippling by tuberculosis. The birth-rate for 1921 was 20·27, the death-rate 9·58, and the infant mortality-rate 67·5. Of the infant deaths about half occurred in the first month of life from the "congenital debility" group of causes. In the school report Dr. Brewer tells us that operations for tonsils have been lessened in number by earlier hygienic treatment of the cases. The results of examining the boys and girls in the secondary schools are interesting. Of the 664 children examined, 220 required more or less extensive dental treatment, but unfortunately no treatment is available as yet. Dr. Brewer gives an account of the two efficiency tests in use for the secondary school-children, which resemble the tests used in the Royal Air Force. The first test is the power of the heart to react to stimulation and to recover when the call for increased action has ceased, and the second is a breath-holding test.

SCHOOL MEDICAL SERVICE.

Cumberland.

THE fourteenth annual report of the medical inspection of children in Cumberland is an interesting one. 14,422 individual children were examined, 8835 of these being in the code group. After the routine inspection all the children in attendance march past the medical officer, who selects many cases of obvious defect as "specials." This, as Dr. F. H. Morison states, is a most valuable procedure. Of the routine children examined only 3 per cent. showed uncleanliness of the head or body, compared with 5 per cent. last year. Eight per cent. of the specials, where no warning was given, showed uncleanliness of the head or body, showing that a "clean up" is undertaken for the occasion of the routine inspection. This fact emphasises the necessity for surprise visits by the nurse. The presence of parents is urged at the re-examination rather than at the primary examination; 40 per cent. of the parents attended the second examination. An important and extensive investigation into the incidence and nature of crippling has been made. The chief cause of crippling in Cumberland is infantile paralysis. Out of 177 cases, 73 were due to this cause, 30 to congenital and birth injuries, 27 to tuberculous disease. Rickets accounted for 8, spinal curvatures for 16, injuries for 8, and other diseases for 15. During the year 23 children were admitted to hospital, but unfortunately owing to the expense of travelling the after-care of these children has had to be suspended.

Durham.

Dr. Eustace Hill well sums up the position of the school medical work in this county. "We require more medical staff, more school nurses, more dentists, many more school clinics, open-air schools, accommodation in hospitals and convalescent homes, and these by no means exhaust the developments necessary or desirable." Altogether 45,596 children were examined during the year, and in January 1921 a well-equipped school clinic was opened providing treatment for minor ailments and for visual and dental defects. It has well justified its existence, for during the year there were 7944 attendances, 2464 for examination and 5450 for treatment. The estimated expenditure on the school medical service is considerably below a penny per child per week. Some excellent suggestions for the amelioration of hygienic conditions in the schools and playgrounds have been put forward by Dr. William Lumsden, who urges the need for providing cleansing facilities. Indeed, it is extraordinary that any school can produce a really clean child when "the water-supply is sometimes found cut off, and it is rare to see a piece of soap, and towels are not always clean." Dr. Lumsden also pleads for the provision of a mirror. The educational value of medical work in the school is well appreciated here. Dr. Hill points out that it can only be carried out successfully by treating each case individually and by explaining the morbid condition in simple words to the mother. Unfortunately the amount of work to be done does not permit of much of this most important educational work. The difficulty of providing for treatment of external eye disease in outlying districts has been solved by the introduction of a small cardboard box about 2½ inches square containing a box of golden ointment, boric acid, cotton-wool, and a glass rod, together with directions for use. These are supplied at 1*s.* a box, which covers the initial cost to the Education Committee. The Board of Education have not sanctioned the scheme for the provision of treatment for enlarged tonsils and adenoids.

The special inquiries into the effect of summer-time upon the children's health and the incidence of rickets among the school children in the county are interesting. Dr. James McIntosh finds 70 to 80 per cent. of young children showing signs of rickets. He urges a greater consumption of green vegetables by mothers, and the need for an increased amount of milk for children of a year old. The head master supplies an interesting report on the Cleadon School Holiday Camp.

Ealing.

During the year 2377 children were inspected in the routine groups. 1913 examinations were made, and 2347 special cases were seen. During routine examination 1103 children were found to have defects requiring either treatment or observation. The school clinic seems the chief activity ancillary to inspection and dealt with 524 cases of minor ailments in addition to 251 visual, 129 throat, and 1467 dental cases. There is no organiser of physical training in Ealing, and Dr. Thomas Orr points out that the provision of suitable educational facilities for mentally defective children is one of the most important matters which will have to be considered by the Education Committee when the ban on new expenditure is raised. At present there are 45 mentally defective children attending public elementary schools and 5 attending certified schools. Seven others are not attending any school. A special investigation into the causes of school absence was made. 90 per cent. of absences were found to be due to illness.

Correspondence.

"Audi alteram partem."

THE CURE OF COMMENCING VALVULAR DISEASE.

To the Editor of THE LANCET.

SIR,—The mischief done to the heart as a machine by advanced inflammatory change in the valve cusps is probably quite beyond remedy. There are, however, many physicians who have discovered that such destructive change, if recognised early in its development, may be arrested; Nature may, if aided by favourable conditions, repair the mischief, and perfectly normal functional activity may be re-established. But there are many members of our profession who do not believe this important truth. It needs to be stated and restated. Let me in the first place point out that the occurrence of a bruit does not always indicate valvular trouble, though most commonly it does. Temporary dilatation may be the cause, other factors have to be considered. In a few cases diagnosis is difficult.

Two conditions are essential for the arrest of commencing valvular disease: (1) Early, careful, and frequent examination of heart sounds in cases of acute rheumatism, chorea, and indeed in all febrile disease; (2) great patience in continuing treatment by rest and other means for weeks or sometimes even for months. But, is it not worth while to take all this trouble and to induce the patient to submit to prolonged quiescence, when the issues are, on the one hand, death or life-long heart disease with all its concomitants, and, on the other, complete recovery, life-long strength, and vigour?

Take the frequent case of endocarditis occurring in acute rheumatism. Why is it that under treatment the joints and muscles involved recover in so large a proportion of cases, while the heart (if we take no precautions) regains its normal condition in so few? Those of us, who, like the writer, have treated hundreds of cases, and have noted, not only the immediate result, but whenever possible the patient's condition after the lapse of years, know that cardiac rheumatism, if no special precautions are taken, commonly leads to permanent valvular disease; but that if prolonged rest and other measures are adopted sufficiently early the inflamed valve cusp regains its normal condition and its physiological function, just as the inflamed joint does. The reason is fairly obvious. The inflamed joint rests, that is ensured by the merciful influence of pain: but not the toiling heart. If an acutely rheumatic knee-joint were flexed and extended 60 or 80 times in a minute continuously, could we hope for recovery? Certainly not. We cannot stop the work of the heart, but we can, if we try, cause its mechanical output to be greatly reduced. Pain and pyrexia being relieved, we can enjoin absolute rest in the recumbent posture, we can encourage sleep, limit diet, and lower blood pressure. We can thus diminish the volume of blood to be moved, slow its flow, and thus greatly lessen the work of the heart. I assume, of course, that the rheumatic attack *per se* is treated in the ordinary manner, that salicylates with an occasional cholagogue are given, that a very light diet with no red meat is prescribed, and that flannel garments are worn to prevent chill.

In regard to the special treatment of valvulitis, in my experience by far the most important means for stopping it is rest. In the absence of rest no other measures are of much avail. Cardiac action must be rendered quiet and slow. Any grave trouble of mind or any excitement counteracts our efforts. Any respiratory difficulty or considerable nervous disturbance coexisting with the rheumatic attack prevents the slowing down of the ventricle and prevents valvular restoration.

We all know how valuable (along with rest) are the effects of sodium or potassium iodide in the treatment of internal aneurysm. The lessening of the volume of the blood, the lowering of blood pressure, and the slowing of the current cause in favourable cases solidification of the contents of the aneurysmal sac, the arrest of pain and stoppage of aneurysmal bruit. So in valvulitis the iodides help in lowering blood volume and pressure. They do not at first make the patient feel any better, rather the reverse, for diminution of vigour and energy for a time are proportionate to the lowering of blood volume and pressure, and, of course, this lowering of vigour and vitality, though temporary, is not pleasant; it needs to be watched by the physician that it does not advance too far. There is no doubt in my mind, however, that this somewhat depressant treatment helps materially the inflamed endocardium, by furnishing the conditions needed for recovery. When the thick and stiffened valve cusp is again rendered supple and free in its action, when regurgitation ceases and bruit and accentuation of second pulmonary sound gradually disappear, we stop the iodides, feed up the patient, and augment again the blood volume.

Various medical and physiological observers have proved the close relation between the first four thoracic nerves and the trophic nerve mechanism of the heart. In heart strain and angina how often the morbid condition of the organ manifests itself centrifugally in the form of pain through these nerves; so, in the reverse direction, there is good reason to believe that we can arouse the trophic cardiac centres to stronger reparative activity by stimulation of the skin to which these nerves are distributed. It is difficult to demonstrate this clearly to the eye, but by means of the galvanometer I have shown that such stimulation does reach the heart, affecting the electric potential of the heart muscle in the frog. Small blisters, little larger than a shilling, are applied along the course of these nerves. They cause practically no pain, and they appear to give relief to cardiac pain and discomfort, they do not increase the force of frequency of cardiac contraction, rather they do the reverse.

Trained as a student and house physician in the belief that nothing could be done to prevent valvular disease, I nevertheless ventured during my earlier years of hospital practice to try various methods experimentally to that end, just as Gil Blas, when he noted that all Dr. Sangrado's patients died (under the treatment of a cold water diet and constant bleeding), suggested that the result could not be worse and might be better if some other method were tried. (I do not wish to imply that my esteemed teachers in any way resembled Dr. Sangrado.) All my earlier efforts proved of no avail, until the triple method detailed above was adopted—viz., prolonged rest, iodides, and stimulation of thoracic nerve related to the heart. Hospital authorities sometimes gave trouble by objecting (and quite reasonably) to the lengthy occupation of beds; when full explanation was given permission was always obtained. A greater difficulty sometimes arose with the patient himself. When feeling well and free from pain he naturally wishes to leave his bed and resume work; a careful statement of the exact condition nearly always caused him to submit to the needful rest.

In earlier years how often have I seen the convalescent case of acute rheumatism leave the hospital apparently quite well, but with a mitral bruit. He goes out cheerfully, full of hope and thankfulness, but in a year or two reappears in the out-patient room complaining of weakness, breathlessness, and perhaps of slight œdema of legs. Then begins palliative treatment, which can only render somewhat easier the gradual descent to the grave. In some cases years, occasionally many years, elapse, but no perfect health or vigour is enjoyed. In later times everyone of my cases was treated by the triple method described, and, provided the cardiac mischief was recent, and if no recurrence of rheumatism took place, real health and vigour returned in the vast majority. Many of them were engaged in hard manual labour, as quarrymen,

joiners, stokers, foundrymen, sailors, or dock labourers. The women also bore well the strain of maternity and household work. In higher grades of life, active and energetic business or professional careers, or the activities of the colonial settler were well borne. One case, after 20 years of observation, is still a mighty hunter able to enjoy the country to the utmost.

No reward in professional life is so great as to see in the long course of years these people enjoy full vigour and health who otherwise might have been crippled, enfeebled, and short-lived.

I am, Sir, yours faithfully,

RICHARD CATON, C.B.E., M.D., F.R.C.P., LL.D.,
Consulting Physician and Ex-President, Liverpool Royal Infirmary; Pro-Chancellor, University of Liverpool.

July 22nd, 1922.

THE CARDIAC CHILD.

To the Editor of THE LANCET.

SIR,—As one who has been working on these lines for some time past I welcome the leading article on the Cardiac Child in your issue of July 15th as a confirmation of the ideas and suggestions contained in my book[1] entitled "The Prevention and Relief of Heart Disease." In that book I drew attention to the great economic importance of the subject, and to the fact that the mortality arising from heart trouble is greater than that due to tuberculosis. And in your review of my book you say, "[the author] enters an earnest plea for the education of teachers and parents as the first requisite in controlling heart disease at school age, and advocates the setting up of some sort of welfare association." To find my example followed is encouragement of the right sort.

I am, Sir, yours faithfully,

G. ARBOUR STEPHENS.
Consulting Cardiologist, King Edward VII. Welsh National Memorial Association.

July 18th, 1922.

THE INTESTINAL FLORA.

To the Editor of THE LANCET.

SIR,—In a paper by Dr. Chalmers Watson in your issue of July 15th some statements are made which invite criticism. The chief point of the paper is the introduction of a "new" medium for the cultivation of intestinal organisms, and his main object in his own words has been to "draw the attention of bacteriologists and others to the facts recorded, with a view of stimulating investigation . . . ." into, particularly, the subject of intestinal toxæmia. Writing as a clinician, he combats "the commonly accepted view that a large proportion of the organisms normally present in the fæces are dead." This he does on the grounds that on an agar medium containing saccharose and milk (the "new" medium), intestinal organisms can be cultivated which do not grow on "the medium commonly employed for the investigation of these general cases," and these media, according to Dr. Watson, are apparently "broth, agar, glucose agar, &c." What is included in "&c." is not made clear, but it is evident that it does not include media cultivated under anaerobic conditions. Indeed, in the experiments recorded comparative tests are given only between the "new" medium and plain agar.

There are several misconceptions involved in this argument. In the first place the view which he attacks as being commonly held is not in fact commonly held by bacteriologists. About 20 years ago it was believed that most of the fæcal organisms were dead, because aerobic cultures on media in use at that time resulted in the growth of only a few of the organisms seen in stained films. As cultural methods improved, and particularly since anaerobic methods were employed, this view was considerably modified (see, for instance, p. 1 of Herter's "The Common Bacterial Infections of the Digestive Tract," published as long ago as 1907 by the Macmillan Company, New York). It is, however, believed that in chronic constipation a much greater proportion of the fæcal bacteria are dead than under normal conditions, and there are good scientific grounds for this belief. Another instance of a high proportion of dead fæcal organisms is in the stool of the breast-fed infant, in which numerous ghost forms, and what Tissier called "formes de souffrance" of the *Bacillus bifidus* may be seen. But there is at the present time no exact method of estimating the proportions of dead and living organisms in the very mixed flora in the stool of an adult. Certainly the methods employed by Dr. Watson throw no fresh light on the question.

In the second place the methods which Dr. Watson refers to as being in common use by bacteriologists in the investigation of fæces are not in fact those used for such a purpose. For the methods used reference may be made to the papers of Tissier, Moro, Rodella, Cahn, Mereshowsky, Jacobson, Noguchi, Distaso, Herter, Thiercelin, Schmitz, Torrey, and others, while as to the special media in general use in laboratories at the present time a recent edition of any text-book on bacteriology may be consulted. In his tests Dr. Watson must use not plain agar to compare with his "new" medium, but some of the media in common use in laboratories, such as the various whole blood, hæmoglobin, and serum media, the extremely acid media necessary for the isolation of the acid-tolerant group, such special media as Sabouraud's maltose agar, egg media, meat media (Robertson), and so on, and, of course, anaerobic conditions are necessary as well as aerobic. It must, however, be obvious to all with a knowledge of bacteriology that no single medium, however complex, can ever be a substitute for the variety of media necessitated by the wide variety of bacteria in the intestine. One need only mention the varying needs of different bacteria as regards physical environment, reaction, oxygen tension, and the presence of specific substances now supposed to be of the order of vitamins to show how impossible such an attempt must be.

Dr. Watson states that "in ordinary medical bacteriology milk is not commonly employed as a culture medium, though its value in differentiating organisms of the coli-form type by chemical tests has long been established." This is incorrect; if one wishes to isolate *B. aerogenes capsulatus*, for example, from the fæces, milk is the medium which is almost invariably employed, while its value for obtaining primary culture of intestinal streptococci has long been known. Further, milk incorporated in agar is not a new but, on the contrary, an old idea. Usually the whey was used rather than whole milk as a clear medium could be obtained. Other observations by Dr. Watson, such as the claims as to the superiority of the new medium for the cultivation of yeasts, are valueless for the reasons already given—that the comparative tests were made on plain agar and not on media suitable for the growth of those organisms.

I am, Sir, yours faithfully,

Edinburgh, July 20th, 1922. W. R. LOGAN.

TENNIS ELBOW: DISCLAIMERS.

To the Editor of THE LANCET.

SIR,—I wish to state that the references in the lay press to my article on Lawn Tennis Elbow, which recently appeared in THE LANCET, have been without my knowledge or approval.

I am, Sir, yours faithfully,

Seymour-street, W., July 19th, 1922. FRANK ROMER.

To the Editor of THE LANCET.

SIR,—With reference to some notes in a London newspaper to-day on the subject of Tennis Elbow, I shall be glad if you will allow me to say through your columns that my name was mentioned without my sanction or approval.

I am, Sir, yours faithfully,

London, W., July 13th, 1922. T. N. DARLING.

[1] THE LANCET, 1922, i., 132.

CHRISTIAN NAMES ON PRESCRIPTIONS.

To the Editor of THE LANCET.

SIR,—I wrote to the Home Office on behalf of dispensing chemists asking whether in the view of the department it was considered necessary that doctors' signatures to dangerous drugs prescriptions should be written with the full Christian names as well as the surname. I pointed out that the custom of doctors was to use initials for Christian names, and that in fact a large number of prescriptions were being issued in that manner. I suggested that it would be a convenience to medical men if they were not expected to change their usual mode of signature for these particular prescriptions. The Home Office, in a letter dated July 12th, intimated that the Secretary of State is unable to adopt the suggestion, and that in his opinion the regulations require a prescription for these drugs to be signed with the full name, that is, Christian name or names, as well as the surname of the medical practitioner giving the prescription.

I should be much obliged if you would draw attention to this matter in your journal, because dispensing chemists are liable to penalties if they accept irregular prescriptions, and it is sometimes difficult to get the necessary alteration made in the doctor's signature.

I am, Sir, yours faithfully,

G. A. MALLINSON,
Secretary, Retail Pharmacists' Union.

19, Tavistock-square, Southampton-row,
London, W.C. 1, July 21st, 1922.

ROYAL MEDICAL BENEVOLENT FUND.

AT the meeting of the Committee held on July 11th 23 cases were considered and £273 voted to 20 applicants. The following is a summary of some of the cases relieved :—

Widow, aged 50, of M.R.C.S., L.R.C.P. Lond. who practised at Caistor and died in 1910. Was left with four children, one of whom is now dead. Three daughters, ages 22, 20, and 15, are with the applicant in the holidays, the two former are students and the younger at school. Income from investments £170 and two grants towards education amount to £35. As the applicant is not resident in London she loses a substantial grant from the Board of Education towards fees, &c. Assistance is asked owing to reduced income and increased educational expenses. Voted £2, and the case was referred to the R.M.B.F. Guild.

Widow, aged 40, of L.R.C.P. & S. Edin. who practised in London and died from pneumonia after three days' illness in February last. She is left with two boys, ages 9 and 6 years. From February she has earned £9 9*s.* from fees for teaching piano and singing and £25 10*s.* from investments. When the estate is realised applicant expects an income of £150 to £200 a year. Asks for assistance towards the education and keep of the boys. Voted £2 and referred to the R.M.B.F. Guild.

Daughter, aged 60, of M.R.C.S. Eng. who practised in London and died in 1883. Applicant and her sister try to help themselves by letting rooms, and they receive £65 rent by letting the top part of the house. This leaves them to find the balance of £60, which includes rates. Applicant receives £41 from investments and her sister £37. The sister also receives an annuity from the Fund of £10. Assistance required towards rent, rates, and taxes. Voted £18.

Widow, aged 68, of L.R.C.P. & S. Edin. who practised in Lancashire and died in 1898. She suffers from ill-health and failing eyesight. She has been looking after a child for which she receives 12*s.* 6*d.* per week, but the child has now been sent to school. She has no income now and is living with a widowed daughter who has to maintain herself and her two children. Voted £18 in 12 instalments.

Daughter, aged 64, of M.D. Edin. who practised in London and died in 1888. Applicant was a head teacher in a school, but lost annuity owing to the school being closed. She then became a stenographer and foreign correspondent and was with the firm 14 years, but owing to the war the firm was closed down and she was too old to obtain another post. Health not good. Has home with her brother in return for looking after him and his daughter. Receives £16. Voted £18 in 12 instalments.

Daughter, aged 61, of M.D.Edin. She is a sister of the previous case. Had to give up dressmaking business owing to ill-health and want of money. Partner took the connexion to a firm which gave commission only. A friend gave applicant and her partner £60 last October. Applicant's eyesight is very bad and she can only work two or three hours at a time. Voted £18 in 12 instalments.

Daughter, aged 42, of L.R.C.P. Lond. who practised at Acton and died in 1901. Has phthisis and is not strong. Twelve months ago a friend came forward and said she would look after her and allowed her £2 2*s.* a week, but this has ceased. At present she has taken a post as a lady help at a small salary as she is not strong enough to do a lot of work. Voted £18 in three instalments.

Subscriptions may be sent to the hon. treasurer, Sir Charters J. Symonds, at 11, Chandos-street, Cavendish-square, London, W. 1.

Medical News

UNIVERSITY OF CAMBRIDGE.—At a Congregation held on July 19th the Vice-Chancellor, Dr. Pearce, presiding, the following medical degrees were conferred :—

D.M.—Oliver Heath, Trinity.
B.M. and *B.S.*—T. L. Hillier, St. John's; H. Spibey, Downing.
B.M.—H. E. H. Oakeley, St. John's; C. B. Clarke, St. Catharine's.
B.S.—A. A. Gemmall and A. G. F. McArthur, King's; C. J. Penny, Jesus; B. Mountain, Sidney.

UNIVERSITY OF LONDON.—Prof. Adrian Stokes, D.S.O., has been appointed to the Sir William Dunn Chair of Pathology tenable at Guy's Hospital Medical School. He has held the posts of assistant to the Professor of Pathology at Dublin University and Pathologist to the Royal City of Dublin Hospital. Since 1919 he has been Professor of Bacteriology and Preventive Medicine at Dublin University. Two years ago he worked with the Rockefeller Commission on Yellow Fever in Nigeria. He is the author of numerous publications on pathological subjects, especially rare abnormality of the heart, infective jaundice, Weil's disease, and the bacteriology of wounds.—The title of Reader in Histology has been conferred on Dr. C. D. Da Fano, Lecturer in Histology at King's College, and the title of Reader in Morbid Histology on Dr. G. W. de P. Nicholson, Lecturer in Morbid Histology at Guy's Hospital Medical School.—Grants have been made for 1922–23 out of the Thomas Smythe Hughes Medical Research Fund as follows: To Dr. C. L. Houlton, of the London (R.F.H.) School of Medicine for Women, £100 for an investigation of vaginal secretions, with a view to the discovery of some prophylactic method for the prevention of puerperal infection. To Dr. V. R. Khanolkar, of University College Hospital Medical School, £25 for an investigation of the presence of non-specific antibodies against proteins, with a view to further insight into the nature of non-specific immunity.—The committee of the medical members of the Senate have elected Mr. Raymond Johnson to be their chairman for 1922–23, in succession to Mr. H. J. Waring on the election of the latter to the Vice-Chancellorship.

At examinations held recently the following candidates were successful in the subjects indicated :—

M.D. EXAMINATION.

Branch I., Medicine.—Duncan G. Churcher, St. Thomas's Hosp.; James Fanning, London Hosp.; Walter H. Grace, Guy's Hosp.; Frederick W. Hamilton, Middlesex Hosp.; Donald Hunter, London Hosp.; Kathleen McCrie McKeown, London Sch. of Med. for Women; Arthur G. Maitland-Jones, London Hosp.; Framroz Nanabhoy Moos, Grant Med. Coll., Bombay, and Univ. Coll. Hosp.; Jal Pestonji Padshah, Univ. Coll. Hosp.; Morris J. T. Wallis, Guy's Hosp.; and Frederick E. S. Willis, St. Bart.'s Hosp.

Branch II., Pathology.—Charlotte I. Fox, London Sch. of Med. for Women.

Branch IV., Midwifery and Diseases of Women.—Gunaratnam F. Cooke, St. Bart.'s Hosp.; Philip H. Mitchiner, St. Thomas's Hosp.; Lily D. Taylor, London Sch. of Med. for Women; and Leslie H. W. Williams, Univ. Coll., Cardiff, and Univ. Coll. Hosp.

Branch V., State Medicine.—Frank A. Knott, Guy's Hosp.; and James V. A. Simpson, Middlesex Hosp., Cambridge Univ., and King's Coll. Hosp.

Branch VI., Tropical Medicine.—Charles V. Boland, St. Bart.'s Hosp. and London Sch. of Trop. Med.; and Henry Hingston, Westminster Hosp.

M.S. EXAMINATION.

Branch I., Surgery.—James G. Jones, Guy's Hosp.

University College.—The following awards of medical scholarships and exhibitions have been made :—Bucknill Scholarship of the value of 135 guineas to Mr. R. L. Midgley. Medical Entrance Exhibitions of the value of 55 guineas each to Mr. E. H. Madge and Mr. V. Freeman.

King's College Hospital Medical School.—The following awards have been made :—

Burney Yeo Scholarship: W. R. F. Collis, B.A., Trin. Coll., Cambridge; and W. I. Daggett, B.A., Gonville and Caius Coll., Cambridge. Senior Scholarship (divided): N. W. Snell and Miss C. P. Francis. Jelf Medal and Tanner Prize: L. Dulake. Todd Prize (divided): L. Dulake and Miss C. P. Francis. Class Prizes :—Diseases of Children: Miss E. C. N. Paterson, D. Davidson (proxime accessit).; Orthopædic Surgery, N. W. Snell; Medicine, L. Dulake; Surgery, W. P. Sheldon; Pathology, C. R. Lane; Obstetric Medicine, P. B. Atkinson; Forensic Medicine and Hygiene, A. C. T. Perkins; Psychological Medicine, E. B. Strauss.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following candidates have passed the Triple Qualification Examination :—

THIRD EXAMINATION.

Archibald Menzies, Laurence A. Moody, Charles J. Coventry, Arthur H. Stephenson, Rodney H. Holt, George M. Rose, William D. Howat, James Donnelly, William N. Stirling,

Hilda Page, Douglas J. Kynoch, Annie H. Sutherland, John Harkness, Patrick Murray, Alexander Gillies, Richard F. Pagnam, Constance C. Reid, Lachlan MacLean, William E. Haydon, James G. O'Keeffe, William Melrose, Joseph R. Whitaker, Frederick W. Duthie, Matthew M. Tannahill, Hamilton J. Marcelin, and Edward N. Jamieson.

Pathology.—Vernon Bell, Darwish Moustafa Safwat, Gavin J. Bell, Mary C. Semple, and Mohammed Mustafa El-Makkawi.

Materia Medica.—Frederico Ayres Correa, Abraham M. Filer, William T. Baker, John S. Whiteside, Archibald C. Young, Alexander J. M. Gall, James Brydone, James G. Currie, William M. B. Rossie, and Robert A. C. Pooley.

FINAL EXAMINATION.

William H. Lloyd-Wronsley, Chong Tak Nam, Arthur K. Tateson, Algernon C. A. Fernando, Max G. L. Lucas, John Mailvaganam Somasundrum, William A. B. Clark, Malcolm Macleod, Morris Witkin, Charles W. de Villiers-Pritchard, Agnes T. Martin, William A. McEwan Stewart, Herbert J. Appleyard, William Gray, William D. Oswald, Ian B. Cummings, and Henry G. F. Cubitt.

Medicine.—Isabel F. King, Minnie E. McMurray, Wilson O. Rodrigo, and Marjory J. A. Ogilvie.

Surgery.—Don Sarnelis Valentine Walpola, Minnie E. McMurray, Peter J. B. Dyce, Peter B. Fernando, and Adriaan V. Bergh.

Midwifery.—Herman Siegfried Nicolaas Menko, Isabel F. King, Leslie I. Myerson, Sathasivam Ponniah, Minnie E. McMurray, Peter J. B. Dyce, John E. Overstead, Peter B. Fernando, Marjory J. A. Ogilvie, and Gwyndaf M. Hughes.

Medical Jurisprudence.—Nicholas Johannes Laubscher, Leonard A. Watson, Alexander H. Forman, Thomas E. Mathias, Donald M. Gray, George H. Tarras, Arnold Raff, Montague A. Watson, Leslie I. Myerson, Alexander Ross, David R. Paterson, Edward S. Greaves, Ferdinand H. A. Stegmann, Douglas M. Beaton, David Isaacs, Percy A. M. Jayewardene, Charles C. Robson, and Oswald L. Shearer.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH: FELLOWSHIP EXAMINATION.—At a meeting of the College held on July 24th the 18 successful candidates out of 42 entered, who passed the requisite examinations between March 20th and 24th, 1922, were admitted Fellows:—

John Allison, James A. Berry, George S. Davidson, Donald G. Duff, William F. T. Haultain, William O. Lodge, James Macarthur, James M. Macpherson, Venkatasubba Mahadevan, Humphrey I. Marriner, James B. Morrison, Frederick F. Petersen, Margaret S. Purce, William Waddell, Walter O. Walker, Chik Hing Wan, Matthew White, Robert H. Williams.

Dr. Jayanta Rao, having passed the requisite examination on July 7th, was admitted a Licentiate of the College.

In the list of successful candidates for the D.P.H. (Oxf.), Part I., published in our issue of July 15th, the name of C. Dunscombe was incorrectly spelt.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An extraordinary Comitia of the College was held on July 20th, Sir Humphry Rolleston, the President, being in the chair. A portrait of Sir Norman Moore, by Mr. W. W. Russell, A.R.A., was presented to the College by Lady Moore and the following resolution was passed:—

The College begs to thank Lady Moore most sincerely for her generous gift of the portrait of Sir Norman Moore, a most distinguished former President of the College.

UNIVERSITY OF MANCHESTER.—The scholarship in Applied Psychology has been awarded to Miss Alice G. Ikin, Natural Science Tripos (Cambridge). The Platt Physiological Scholarship has been awarded to Mr. Harry Zwarenstein. The following appointments have been made:—Lecturer in Practical Surgery: Mr. Charles Roberts; Clinical Lecturer in Mental Diseases: Dr. J. A. C. Roy.

NATIONAL CONFERENCE OF LOCAL VOLUNTARY HOSPITAL COMMITTEES.—This conference was continued on July 19th, when, after some discussion, the following resolution in regard to hospital extension was adopted:—

That local hospital committees should not recommend any extension scheme to the public unless they are satisfied (*a*) that the extension is necessary and is planned on a reasonable scale and that the services cannot be provided by coöperation with other institutions; (*b*) that sufficient funds will be available within a reasonable time for the execution of the scheme or an effective part of it; and (*c*) that funds are or will be available to meet the cost of maintenance of the hospital, including any additional maintenance charges resulting from the extension, and that the appeal for capital expenditure will not prejudice the raising of the funds required for the maintenance of the hospital itself or other institutions in the area.

A general discussion then followed on the propositions that average deficiency over a period of three years should be adopted as the basis of the distribution of the Government grant instead of deficiency in 1921, and that accumulated deficits should be taken into account in fixing grants, the general opinion being in their favour. In regard to the question of methods of raising revenue, representatives of various local committees outlined the schemes adopted in their respective areas, and Sir Walter Kinnear, controller of the insurance department of the Ministry of Health, made a statement in regard to the approved societies and their attitude towards the hospitals. There were, he said, about 9000 approved societies in the country, and the Government had urged that their very considerable surplus should be used to help the hospitals. Owing, however, to the high cost of living the surpluses in the case of many of the smaller societies had been used to augment the benefits of their members, leaving 976 societies which had consented to devote a proportion of their surplus to the hospitals for the next five years. This would mean an annual contribution of £200,000 or more. Lord Cave asked whether it was intended to keep the Voluntary Hospitals Commission in existence after it had disposed of the Government grant and whether the Government desired the permanent services of the local committees. These committees performed an important duty in coördinating regional hospitals, and he hoped their work would be continued. It was wasteful to have large and fully equipped hospitals existing in close proximity with large areas where there were no hospitals at all. There ought to be some system of organisation. Then, again, the local committees were a powerful factor in collecting funds. Lord Cave concluded by urging the need for a unified and simplified system of keeping hospital accounts. Lord Somerleyton endorsed Lord Cave's remarks. Lord Onslow, the chairman, in his reply said, that the present Government was a strong voluntary hospital Government and would do all it possibly could to maintain the voluntary principle. He hoped that the local voluntary hospital committees would become more and more useful and therefore tend to become more and more permanent, for their function began and ended with the maintenance of the voluntary system. The Voluntary Hospitals Commission had not yet considered the question of what would happen to it when the money was exhausted, and certainly for the present its existence was justified if only as a liaison body between all the committees. It was also important that while the voluntary hospitals should not be run by the Government they should be in touch with it.

DONATIONS AND BEQUESTS.—The Chelsea Hospital for Women has received from the executors of the late Mr. T. L. Green a donation of £200.

TYPHUS AT RAASAY.—An outbreak of typhus on the island of Raasay was reported to the Scottish Board of Health last week. Although under the Highlands and Islands Medical Services scheme the island is under the supervision of Dr. Morison of Portree, the parish medical officer, there is no doctor resident on the island. On the occurrence of the outbreak, the district committee represented to the Board the desirability of arranging for the temporary appointment of a medical officer who would reside on the island to cope with the outbreak, and through the courtesy of the Midlothian and Peebles District Board of Control and of Dr. J. H. C. ORR, superintendent of the Rosslyn Castle Asylum, the Board were able to obtain the services of Dr. Francis Sutherland, who left Edinburgh for Raasay on July 20th.

DENTAL BOARD OF THE UNITED KINGDOM.—At a committee meeting of the Board held on July 14th the nomination was received of Mr. James H. Stirling by the Lord Lieutenant of Ireland as a member of the Board in place of Mr. John Sinclair, D.L., who died on May 14th.

Approved Hospitals.—The Board resolved to inform the Minister of Health that in their view any hospital which is approved by one of the licensing bodies in the United Kingdom for the instruction of medical students should be approved under Section 5 (5) of the Dentists Act, 1921, together with the following schools of dentistry: Birmingham Dental Hospital; Bristol Royal Infirmary and General Hospital; Dental Hospital of Ireland, Dublin; Dundee Dental Hospital; Edinburgh Dental Hospital; Glasgow Dental Hospital; Leeds Dental Hospital and Public Dispensary; Liverpool Dental Hospital; Guy's Hospital Dental School; London Hospital Dental School; National Dental Hospital, London; Royal Dental Hospital, London; Manchester Dental Hospital; Newcastle-upon-Tyne Dental Hospital; Sheffield Royal Hospital; and the Dental Department of any University of the United Kingdom.

Government Grants to Students.—It was resolved that information should be obtained from the deans of dental schools as to details in regard to any students who have been unable to obtain a qualification in consequence of the expiry of Government grants prior to passing the final examination, with a view to giving financial assistance in deserving cases, and that the chairman and treasurers be authorised to make grants, if they see fit, in order to enable these students to qualify.

War Service Candidates.—In the case of applicants for registration who were unable to comply with the requirements of the Act in consequence of service in H.M. Forces the Board signified its willingness to substitute July 28th, 1922, for July 28th, 1921, where mentioned in the Dentists Act, 1921, in connexion with these applications.

SOCIETY OF M.O.H.'s: SCHOOL MEDICAL GROUP.—At the recent annual meeting of the Group, Dr. C. J. Thomas was elected president and representative on the Council of the Society for 1922–23, Dr. A. Ashkenny was re-elected hon. secretary and treasurer. It was decided to ask six school medical officers to draw up a memorandum on their relation to secretaries of education committees for consideration at a future meeting.

THE LATE DR. E. L. PROWDE.—Dr. Edwin Longstaff Prowde died recently at his residence in Sunderland in his seventy-first year. Educated with a view to entering the church he graduated in arts at the University of Cambridge in 1874, but afterwards decided to study medicine and proceeded to the M.B. and M.D. degrees at Durham in 1881 and 1885 respectively. Between these two dates he became L.R.F.P.S. and L.M. Glasgow. In 1884 he was appointed medical officer to the Sunderland Union, a post which he held for 38 years, retiring owing to ill-health in April last. He was greatly esteemed by the inmates of the institution over which he presided, and his devotion to duty and sympathetic manner endeared him to all with whom he came into contact. He leaves a widow and two sons.

THE SALE OF UNSOUND FOOD.—A conference of representatives of metropolitan borough councils was held at Islington on July 18th to consider the steps to be taken to prevent the sale of unsound fruit, vegetables, and tinned foods by wholesalers to costermongers and eventually to the public. Councillor A. Campbell (Islington) presided, and Mr. C. G. E. Fletcher was appointed hon. secretary. Dr. G. Clark Trotter referred to the difficulties of tracing unsound food and the need for some amendment of the law to enable it to be dealt with in bulk before being distributed among small retailers. A letter from Dr. Louis C. Parkes having been read, the following resolution was passed unanimously by the conference:—

That the attention of the Minister of Health be drawn to the necessity for the law relating to the sale of unsound food being amended by the addition of the following words at the end of Section 47 (3) of the Public Health (London) Act, 1891, "and had taken reasonable steps to ascertain that the article was not in such a condition as to be liable to be seized and condemned under this section."

A copy of the resolution will be sent to various bodies concerned with the matter and the Minister of Health is being asked to receive a deputation composed of medical officers of health of eight metropolitan boroughs on the subject.

ASSOCIATION OF POOR-LAW MEDICAL OFFICERS.—The annual meeting of the Association of Poor-law Medical Officers was held at the offices of the British Medical Association on July 13th. Dr. A. E. Cope (London), Chairman of Council, presided over the preliminary proceedings, and proposed the election of Sir Arthur Newsholme as President of the Association in succession to the late Surgeon-General Sir George Evatt. The resolution was carried and Sir Arthur Newsholme then occupied the chair. The annual report and balance-sheet were approved and adopted and officers and council were elected for the ensuing year. Subsequently the newly elected President gave an interesting address. He traced in detail the history of Poor-law legislation from feudal times to the present day. The history of medical attendance on the poor in this country he regarded as tantamount to the history of Christian civilisation. The institution of workhouses towards the end of the seventeenth century had led to a great reduction in the claims of the poor-rate. Changes followed which altered the fundamental principle of the workhouse. In 1796, also, out-door relief to the able-bodied was specifically legalised. The cost of relief bounded up to an enormous height and there followed the creation of larger Poor-law unions and a rapid reduction of out-door relief to the able-bodied. The need for differential treatment of the sick poor had been gradually realised, and at the present time he considered they were better treated than ever before. THE LANCET inquiry in 1866 had revealed the terrible conditions of the sick poor in workhouses and reforms followed. In 1895 the Local Government Board issued an order prohibiting nursing by paupers. There must be no question of inferiority of treatment for the destitute. The necessity of treatment as a means of improving national efficiency had gradually become realised. Whatever changes were made the work and appointment of district medical officers must remain and become increasingly important. Their present pay was inadequate and the preventive aspects of their work had not been developed. He looked forward to the time when their work would receive the acknowledgment both socially and financially which its national importance demanded. On the motion of Dr. A. Drury, seconded by Dr. Ridley Bailey and supported by Dr. Cope, a vote of thanks was accorded to Sir Arthur Newsholme for his inspiring address.

THE UNIVERSITIES COMMISSION.—A Bill has been introduced into Parliament by the President of the Board of Education for the purpose of setting up a Statutory Commission for Oxford and Cambridge to deal with trusts, research and other matters. The nominees for Oxford include Sir Archibald Garrod, Regius Professor of Medicine, and for Cambridge Sir Hugh K. Anderson, M.D., Master of Caius and Gonville. It is expected that the labours of the Commission will extend over two years.

UNIVERSITY OF PARIS · POST-GRADUATE COURSE IN DISEASES OF THE DIGESTIVE TRACT.—Prof. M. A. Gilbert, with the assistance of MM. Maurice Villaret, Deval, Lagarenne, Dufourmontel, Moutier, Leven, Coury, Saint Girons, Henri Bénard, Herscher, Lardennois, Paul Descomps, Chabrol, Lippmann, Dumont, and Durey, will hold a post-graduate course on recent medico-chirurgical work in diseases of the digestive tract, beginning on Sept. 7th, at the medical clinic of the Hôtel-Dieu. The course will consist of 31 lectures, and will last for 10 days. The lectures will be grouped under four headings—exploration, symptoms, diseases, and general treatment—and will be illustrated by lantern slides, specimens also being shown, and cases demonstrated. A certificate from the Faculty of Medicine of the University of Paris will be given to those who complete the course. Medical men and students desirous of attending should write to the Secretary of the Faculty of Medicine, University of Paris.

MEDICAL PRACTICE IN THE WEST OF IRELAND.—The difficulties of carrying on medical practice in certain western and south-western counties in Ireland are well exemplified by a report from Dr. T. F. Collins, medical officer at Roundstone, co. Galway, dated July 15th, which reached the Ministry of Local Government on the 22nd. Dr. Collins reports cases in his district urgently in need of hospital treatment; the nearest hospital is in Galway, about 40 miles away, and he writes as follows:—

"I have made several unsuccessful attempts to communicate with you, and am now as a last resort sending this by boat. . . . . We are absolutely cut off here, no post or telegraphic communication, no railway, and, worst of all, no petrol. I am seriously hindered in the execution of my professional duties by the want of petrol; as you are aware, I have a very large district to attend to, and there is an exceptional amount of sickness just now. Not since the influenza epidemic has there been so much illness in this district. This is due mostly to the extreme poverty prevailing, attended by the shortage of necessary foodstuffs. The people here are in a very bad way indeed. Would it be possible to send me a supply of petrol, say 24 gallons, by your ambulance, when it calls for these patients. The cost of same could be deducted from my salary. If not, I do not know how to manage. I have appealed to the I.R.A. (the irregulars) in Clifton (who have commandeered all available supplies), but without result."

A SMALL-POX HOSPITAL AS CONVALESCENT HOME.—The Minister of Health has consented, under certain conditions, to the use of the small-pox hospital under the control of the Bromley and Beckenham Joint Hospital as a convalescent home for patients from the infectious diseases hospital. It has never been required as a small-pox hospital. Adequate arrangements will be made for the reception of cases of small-pox elsewhere, and for immediate evacuation of the convalescents in the event of small-pox being notified.

THE House and Library of the Royal Society of Medicine will be closed during the whole of August for repairs and cleaning.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£2 2 0
	Six Months	1 1 0
	Three Months	0 10 6
ABROAD	One Year	2 10 0
	Six Months	1 5 0
	Three Months	0 12 6

Subscriptions may commence at any time and are payable in advance. Cheques and P.O.'s (crossed "London County Westminster and Parr's Bank, Covent Garden Branch") should be made payable to THE MANAGER, THE LANCET Offices, 423, Strand, London, W.C. 2.

ADVERTISEMENT RATES.

Books and Publications .. .. } Four Lines
Official and General Announcements .. } and under 6s. 0d.
Trade and Miscellaneous Advertisements }

Every additional line, 1s. 6d.

Quarter Page, £3. Half a Page, £6. Entire Page, £12.

Special Terms for Position Pages.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, JULY 19TH.

MILK AND DAIRIES BILL.

Sir A. MOND, in moving the second reading of the Milk and Dairies (Amendment) Bill, which has already passed through the House of Lords, explained that in 1915 a Milk and Dairies Act was passed, a very large and ambitious measure, the operation of which was postponed until after the war. That Act came into operation automatically on Sept. 1st next. The condition in which they found themselves at the present time both in regard to the finances of the country and the industry of agriculture was such that it would be generally agreed that the Act of 1915 was one which they could not wisely put into operation at the present time. Two alternatives were open to him, either to postpone the Act of 1915 for a further number of years, or to endeavour in the least expensive and least ambitious way to improve the supply of milk and the production of milk, which was very far from satisfactory from the public health point of view. He had adopted the second alternative. The Act of 1915, which required large staffs and placed very heavy duties on the county councils, was estimated to impose a charge of something like £800,000, rising to £1,000,000, in the cost of administration. That was an expenditure which they could not possibly undertake at the present time. With the very natural anxiety to get the milk-supply improved so far as quality was concerned, they were a little apt to overlook the fact that a great many milk producers, if they placed too onerous conditions upon them, would cease to produce milk. He was introducing this Bill with a view to endeavouring to encourage the production of good milk—that was to say, he wished to establish a grade of milk which was not so dear that it could not be used by a large part of the population. He wanted to act by a form of persuasion, and the best form of persuasion undoubtedly lay with the consumer. He was interested in a hospital situated in a very poor part of London, which concerned itself with infants under 12 months who suffered from malnutrition. When the mothers, from a very poor stratum of society, who visited the out-patients' department were told of the good milk which they ought to have they went to the retailers and refused to take the poor milk which they had been given in the past. Thus they effected in the district an extraordinary revolution in the quality of the milk. Local authorities already possessed very considerable powers of securing sanitary conditions in production, storage, and distribution of milk, but at present if a local authority outside London had once registered a dairy it had no power to take away registration. He proposed in this Bill to give that power. He had endeavoured to guard against arbitrary action on the part of the local authorities against the retailer. He was endeavouring to work on the method of grading up. They had already 35 grading stations which were properly controlled and in which a very strict inspection was made with tuberculin tests in regard to the cattle used. The number of licences for the certified grade and Grade A had been increased from 17 in March, 1920, to 57 in July, 1922. This milk was, however, at present rather a luxury article than one useful to the great mass of the people. He proposed to try to provide a system under which any reasonably careful farmer ought to be able to supply this quality of milk without any additional cost to himself. They wanted to set up as a standard article milk which for health purposes ought to be satisfactory. The grading would be done by Orders to be drawn up when the Bill was passed, and which would have to be submitted to the House.

The Tuberculin Test.

With regard to the tuberculin test, what they wanted to get was milk free from tuberculosis bacteria. It was not the case that every cow that reacted to the test gave tuberculous milk. At the present moment the Medical Research Council, at his instigation, was carrying on an elaborate investigation into the whole question of the value of the tuberculin test. He proposed to go on the lines of testing the milk rather than the cow, and he was laying down a standard of a bacteriological kind in the milk test rather than dealing with the animal which was producing it. By an investigation into these problems they would find many new and interesting facts about which, at present, their knowledge was very obscure, and finally arrive at something more satisfactory. In Clause 4 they introduced provisions for prohibiting the addition of colouring matter or water, and other things of this kind, to milk. The mere fact of a man exposing for sale adulterated milk brought him under the penalties of the Act. Under Clause 5 it was made an offence for any person knowingly to sell milk from a cow with tuberculosis of the udder. For the first summary conviction there was a fine not exceeding £20, and for second and subsequent convictions a fine not exceeding £100, or imprisonment with or without hard labour for a period of six months. Clause 8 gave the Minister power to make Regulations for the prevention of danger to health from imported milk. It was not a question of condensed milk, but a question of fresh milk. Condensed milk fell under another category, and the question of the standard was one more of food value than of liability to spread tuberculosis. Regulations not yet settled might lay down some standard and empower appropriate authorities to reject milk not up to that standard. He would not like at the moment to say what they should be, as he had not considered the details. Considerable powers already existed under Milk and Dairy Orders issued in the past, but in many cases these powers had been allowed to become a dead letter. Under Clause 11, where a district council within a county had failed to exercise any of the powers under this Bill or any enactment relating to milk and dairies or any Order or Regulations made thereunder, the Minister of Health might, after inquiry, by Order determine that all or any such powers be transferred to the county council either for a definite period or until the Minister should otherwise direct. In some districts existing Orders were being enforced with very great zeal, while in other parts of the country they had become a dead letter. This was neither fair to the producers of milk nor to the people living in the district. He had endeavoured to frame a small and modest, but, he thought, a useful measure, which would be a good step forward in the production and retailing of a better class of milk. No one could be very proud of the position which this country occupied compared with the United States on the question of our milk-supply. He hoped, however, that this Bill, when passed, would carry them a stage farther on the long road which had been travelled for many years to provide the people of this country with a better and purer and, he hoped, not more expensive supply of milk which was so much needed.

Mr. ACLAND welcomed the Bill as a first step in the right direction, and he hoped it would not be the last. It was high time that they made a beginning of practical action in this matter. With regard to tuberculosis in cattle, as in human beings, there was a great deal to learn medically. Sir A. Mond had not laid down the law in that respect, but had left it to the Medical Research Committee who, if anybody could arrive at a conclusion, were the body to arrive at it.

Milk as a Disease Carrier.

Sir WATSON CHEYNE said they might look at milk in two ways, one as a food and one as a possible carrier of dangerous organisms, and so as the producer of disease. Milk might be a carrier of disease in two ways. It might carry typhoid, not through the cow having typhoid fever, but because the water used to dilute the milk might have come from an infected well, or because the milkman was a carrier of it, having the typhoid himself. Similarly with diphtheria and scarlet fever, but in none of these cases was it infected until it came into the outer world. In the case of tuberculosis, however, the milk carried the germs of an extremely serious and fatal disease, and anyone who had had dealings with tuberculous diseases in man would feel that no pains should be spared in preventing the carrying of disease from the cow to man. What had struck him as extraordinary was the difficulty that one had in getting agreement with agriculturists or dairy people as to the necessity for taking special precautions in regard to tuberculosis. He could not believe that it was due to anything else than want of appreciation of the real danger. He could not believe that anyone would knowingly sell milk containing tuberculosis virus in the knowledge that by doing so he was spreading the disease among the children and the younger members of the community. He was very glad to see what the Minister had said about tuberculous milk in the Bill, but he thought that it left a loophole for evasion, because anyone could say that he did not knowingly sell such milk. If a man went into a restaurant and ate a pie, afterwards being taken ill of ptomaine poisoning, he compelled the restaurant keeper to pay damages and expenses, although the restaurant keeper undoubtedly sold the pie unknowingly. He was afraid that the words in the latter part of the clause about tuberculosis of the udder would mislead the farmer, who would concentrate all his attention on the question whether or not the cow's udder was tuberculous, and would forget to see whether the milk was free from bacilli. The question of tuberculosis of the udder was an extremely difficult one. Diagnosis for tuberculous disease by external handling of an udder was almost impossible, and in any case plenty of expert veterinary evidence would be given in a court of law, some saying that the udder was tuberculous and some saying that it was not. He did not believe that they would get a conviction unless something was said about the important

point whether the milk contained tubercle bacilli. Skilled people could tell quite easily whether the milk was tuberculous by examining it microscopically for tubercle bacilli. This could be done quickly, cheaply, and accurately. He would like to see in the Bill after the words "milk of a cow suffering from tuberculosis of the udder," the words "as determined by the presence of tubercle bacilli in the milk," or else leave out the words referring to the udder, and say "sell or offer or expose for sale the milk of a cow containing tubercle bacilli." Tuberculous disease of the intestines, bones, joints and so forth in this country was, to a great extent, due to that particular form of infection which affected the cow. He was talking only the other day to a doctor who had practised in America, for some time in one of the States where very stringent precautions, which were smiled at here, were enforced. He told him (Sir W. Cheyne) that he had been several years in private practice there, and had constantly visited the large hospitals in the city and the immediate neighbourhood. He had never once all the time he was there seen a case of tuberculous glands in the neck. They had only to go to any hospital in this kingdom, and especially children's hospitals, and they would see cases of tuberculous glands in the neck, but in this particular State in America, as a result of the stringent regulations made by the Government in regard to tuberculous milk, that form of tuberculous disease was not in evidence at all. He thought that in that respect this country, which for many years was the leading country in all matters of public health, had fallen behind. It was the greatest pity in the world that it should be so. He wished to point out that they were dealing here with one of the most terrible poisons that could be introduced into anyone. If a milkman were to sell milk diluted with arsenic they would say that he was a terrible man, and that it was a terrible thing to do—even though it were done accidentally. Why should he be allowed to sell milk filled with tubercle bacilli of the most virulent description? This was a matter that deserved most serious consideration. He thought that the Bill was on the right lines, but he begged the Minister to strengthen it, and to think over what he (Sir W. Cheyne) had said about making the demonstration of tubercle bacilli the real test for the regulation of the supply.

Mr. MYERS, speaking on behalf of the Labour Party, said that they would not vote against this Bill on the principle of taking what they could get. But they deplored the further postponement of the 1915 Act, which they believed, under present conditions and existing circumstances, could not be justified.

Dr. ADDISON said the Bill was an exiguous affair. As a matter of fact it ought to be described as a "Milk and Water Bill." They would never get what was needed in this country until they framed their policy to encourage the production of a much more abundant supply of cleaner milk. He was sorry to say that he could not see that this Bill, with the exception of one provision, was going to help them on that road in the very least. They would not get clean milk in this country until they had an instructed public opinion. The Act of 1915 tried to approach the problem to some extent from that end. All this Bill did was to impose certain penalties on unfortunate persons who had shops, but they were not told, and the public were not to be told, where the dirt came from, and what steps were to be taken to prevent it getting there in future. That was the only thing that mattered.

After further discussion the Bill was read a second time.

Drugs and Medicines for Panel Patients.

Sir JOHN LEIGH asked the Minister of Health what, if any, precautions were taken against the supply of drugs and medicines of inferior quality to panel patients by retail chemists; and was he aware that such patients were frequently informed that they could have drugs and medicines of superior quality by paying for them.—Sir A. MOND replied: Tests are made from time to time to ensure that prescriptions are correctly dispensed, and severe penalties have been imposed in cases where chemists have supplied drugs of a kind different from that ordered by the doctor. As regards the latter part of the question, if the hon. Member will give the particulars of any cases in which such statements have been made, whether by practitioners or chemists, which have been brought to his notice, I will have inquiry made with a view to disciplinary action if the facts can be established.

Disabled Men's Eligibility for Pension.

Mr. MILLS asked the Minister of Pensions whether it was now decreed that a disabled man's claim was to be regarded as from the first period of disability in spite of the probability in many cases of men returning to duty many times, and whose condition had been aggravated by such service; and whether, in view of the feeling of resentment among public bodies administering these cases, he would insert a new interpretation in the Royal Warrant.—Major TRYON replied: A man's eligibility for pension is not affected by his removal from duty on one or more occasions, except in so far as it may afford evidence of the existence of the disability, and thus help to establish connexion between the disability and military service.

Reduction in Health Expenditure in Scotland.

Lieut.-Colonel ASSHETON POWNALL asked the Secretary for Scotland what action had been taken with regard to the discontinuance suggested by the Geddes Committee of the item of £7000 a year for port sanitation, and the reduction of members on the Scottish Board of Health.—Mr. MUNRO replied: In view of the fact that the port sanitation services are in large measure national services, in the efficient maintenance of which the whole nation is interested, it was decided to make provision in the Estimates for the current year of the Scottish Board of Health for the sum referred to as representing a fair contribution from the State towards the cost of these services at Scottish ports. As regards the last part of the question, I would refer my hon. and gallant friend to Section 23 of the Economy (Miscellaneous Provisions) Bill, from which he will see that it is proposed to effect the reduction of members recommended by the Geddes Committee.

THURSDAY, JULY 20TH.

Allegations against a Panel Practitioner.

Mr. RHYS DAVIES asked the Minister of Health whether his attention had been called to the strictures passed by the West Essex coroner on a doctor who, after being twice requested to do so, declined to attend a patient, and when he arrived at the man's home the patient was on the point of death, and died later apparently through lack of early medical attention; whether the doctor or the man were on the panel; and whether he would take steps so that such incidents might not recur.—Major BARNSTON replied: My right hon. friend has made inquiry, and he is informed that at the time of the occurrence the patient was not entitled to medical benefit, nor had he ever been on the list of the doctor concerned. This doctor is an insurance practitioner, but there is no question of any failure to carry out his obligations under his agreement with the insurance committee.

Clearing Slum Areas in Scotland.

On a Vote for £812,422 to complete the sum for the Scottish Board of Health, including grants and other expenses in connexion with housing,

Mr. MUNRO, Secretary for Scotland, said that though it could not be said that they had solved the housing problem in Scotland, they could at least claim that something material had been done to alleviate the deplorable conditions that prevailed. To-day 25,550 houses were either built, building, or planned. In addition, 2400 houses were built or building under the private builders' subsidy scheme and 400 under the special crofters' scheme, a total altogether of 28,350. With regard to the clearance of slum areas the Board of Health hoped, if the local authorities coöperated, to approve schemes involving a capital outlay of from £3,000,000 to £4,000,000 sterling.

The vote was agreed to.

FRIDAY, JULY 21ST.

Medical Research.

Major MCMICKING asked the Minister of Health whether the fund raised by the application of 1*d.* annually in respect of each insured person was still applied by the Insurance Commissioners, under Section 16, Subsection (2), of the National Insurance Act, for the purposes of research; and what sum out of moneys provided by Parliament was retained for these purposes during the year ending April 5th, 1922.—Sir A. MOND replied: The provisions of the National Insurance Act referred to in the question were repealed by the Ministry of Health Act, 1919, wherein it was enacted that the duties of research hitherto performed by the Medical Research Committee (under the direction of the National Health Insurance Joint Committee) should be carried on by or under the direction of a Committee of the Privy Council. Provision for this service is now made in the estimates for Civil Services, Class IV., Vote 8, the sum voted by Parliament for the year ended March 31st, 1922, being £130,000.

Houses Unfit for Habitation.

Mr. TREVELYAN THOMSON asked the Minister of Health how many of the 434,000 unoccupied houses referred to in the Census of 1911 were unfit for habitation; how many empty houses there were at the Census of 1921; and how many of them were unfit for habitation.—Sir A. MOND replied: I would refer the hon. Member to the paragraph on Uninhabited Dwellings contained on page 6 of Volume VI. of the Census 1911, from which he will see the buildings in ruins and others condemned as unfit for habitation were not intended to be counted as dwellings in the figure referred to. The figures for 1921 are not yet available.

MONDAY, JULY 24TH.

Importation of Cocaine.

Dr. M'DONALD asked the President of the Board of Trade if he would take steps to obtain from all persons licensed to import cocaine into the country a record of the areas to which it was distributed.—Mr. SHORTT replied: Licensed importers are required to keep records of their sales and these records are inspected from time to time. The records would not show, however, the areas in which the drug is eventually distributed as it may pass through several hands, wholesale chemists, manufacturing chemists, and others, before it reaches the medical practitioner, dentist, or other person by whom it is used.

Skimmed Milk as Infants' Food.

Mr. GRATTAN DOYLE asked the Minister of Health whether, seeing that under existing powers he was not able to alter the present statutory requirements that condensed separated milk must be labelled machine-skimmed milk, instead of skimmed milk unfit for infants, as recommended by Dr. F. J. H. Coutts in 1911, in his report to the Local Government Board, and by many authorities since and now, he would insert provisions in the new Milk Bill, or otherwise, to enable an alteration to be made in the present condition of things.—Sir A. MOND replied: The point raised by the hon. Member will not be lost sight of during the committee stage of the Milk and Dairies (Amendment) Bill.

TUESDAY, JULY 25TH.

Outdoor and Indoor Relief Statistics.

Mr. MARRIOTT asked the Minister of Health the number of persons in receipt of outdoor relief and indoor relief on Jan. 1st, 1921, July 1st, 1921, Jan. 1st, 1922, and July 1st, 1922, respectively.—Sir A. MOND replied: The numbers for England and Wales were as follows:—In receipt of outdoor relief, Jan. 1st, 1921, 376,258; July 1st, 1921 (approximately), 1,174,000; Jan. 1st, 1922, 1,183,439; July 1st, 1922 (approximately), 1,478,000. In receipt of indoor relief, Jan. 1st, 1921, 198,992; July 1st, 1921 (approximately), 202,000; Jan. 1st, 1922, 215,773; July 1st, 1922 (approximately), 210,000. Lunatics in lunatic asylums are not included in the foregoing, nor are vagrants.

Institutional Treatment of Certifiable Ex-Service Men.

Captain LOSEBY asked the Minister of Pensions the number of officers, non-commissioned officers, and men lodged in institutions conducted by his ministry who were certifiable under the Lunacy Acts, but who had not been certified; and if these men were lodged in the same institutions as non-certifiable patients.—Major TRYON replied: When the mental condition of a patient in one of the ministry neurological hospitals unhappily deteriorates towards insanity he is kept apart from the other patients, and every approved means of cure known to modern science is tried. Should the treatment fail to arrest the development of the malady before the stage at which certification is required by law, the necessary steps are at once taken for the patient's removal to a mental institution approved by the Board of Control.

Appointments.

JENKINS, E. M., M.B., Ch.B. Edin., has been appointed House Surgeon to the North Devon Infirmary, Barnstaple.

LANGTON, H. C., M.B., B.S. Lond., Anæsthetist to the Seamen's Hospital, Royal Albert Dock.

MARSHALL, G., M.D., M.R.C.P. Lond., Assistant Physician to the Hospital of St. John and St. Elizabeth, London, N.W.

ROBINSON, J. S., M.B., B.Ch., B.A.O. Univ. Dub., F.R.C.S. Edin., Honorary Assistant Surgeon and Orthopædic Surgeon, Cheltenham General Hospital.

General Infirmary, Leeds: LAUD, K. S., L.M. & S. Bombay, Resident Ophthalmic Officer. WILSON, K., M.B., Ch.B. Leeds, Resident Gynæcological Officer. LEVY, S., M.B., Ch.B. Leeds; PLATT, P. M., M.B., Ch.B. Leeds; HELLIER, Miss, M.B., Ch.B. Leeds; PEACOCK, Miss, M.B., Ch.B. Leeds, House Physicians. BLACKBURN, J. T., M.B., Ch.B., Leeds; CHAMBERLAIN, D., M.B., Ch.B. Leeds; JOWETT, — M.B., Ch.B. Leeds; TREWICK, — M.B., Ch.B. Leeds, House Surgeons.

Manchester Royal Infirmary: LANE, R. R., M.B., Ch.B. Manch., Surgical Registrar; BROWN-HENDRY, J., L.R.C.P. & S. Edin., Junior House Surgeon to the Specials Departments; GRIEVE, H. R. R., M.B., Ch.M. Sydney, House Physician: PRATT, HILDA, M.B., Ch.B. Manch., Assistant Medical Officer, Central Branch.

Certifying Surgeons under the Factory and Workshop Acts: EVANS, G. P., L.R.C.P. Lond., M.R.C.S. (New Southgate); LUNN, J., M.B., C.M. Glasg. (Wainfleet); and LORNIE, P. C., M.B., Ch.B. Edin. (Chirnside).

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne District Infirmary.—Res. Surg. O. £250.
Benenden, Kent, National Sanatorium.—Asst. M.O. £250.
Birmingham, Rubery Hill and Hollymoor Mental Hospital.—Two Jun. Asst. M.O.'s. £350 each.
Bradford City.—Asst. M.O. £500.
Brighton, Royal Sussex County Hospital.—H.P. £175.
Bury Infirmary.—Jun. H.S. £150.
Dudley Guest Hospital.—Hon. S.
Gloucestershire Royal Infirmary.—Asst. H.S. £150.
Hospital of St. John and St. Elizabeth, 40, Grove End-road, N.W.—Res. M.O. £150.
Huddersfield County Borough.—Asst. M.O.H. £500.
Huddersfield Royal Infirmary.—Sen. H.S. £250.
Hull Royal Infirmary.—Asst. H.S. £150.
Leeds General Infirmary.—Res. Surg. O. £200.
Leeds University.—Lecturer in Bacteriology. £500. Also Demonstrator in Pathology. £250.
Liverpool Royal Children's Hospital.—Two Res. H.P.'s and two Res. H.S.'s. Each £90.
Liverpool Royal Infirmary.—H.S. £300.
Liverpool Royal Southern Hospital.—Two H.P.'s and three H.S.'s. Each £100. Res. Cas. O. £150. Also Pathologist.
Manchester, Ancoats Hospital.—H.S. £150.
Manchester Hospital for Consumption.—Res. M.O. £350.
Miller General Hospital for South-East London, Greenwich-road, S.E.—Sen. Res. M.O. £350. Also H.P. and H.S. Each £150.
North Middlesex Hospital, Silver-street, Edmonton, N.—Jun. M.O. £200.
Oldham County Borough.—Asst. M.O.H. £350.
Oxford County and City Mental Hospital.—Second Asst. M.O. £350.
Parish of St. Mary, Islington Infirmary, Highgate Hill.—Asst. M.O. £350.
Queen Mary's Hospital for the East End, Stratford.—Hon. M.O.
Royal Free Hospital, Gray's Inn-road, W.C. 1.—M.O. for Electro-Therapeutic Dept. £50.
Salisbury General Infirmary.—H.S. £200.
Springfield Mental Hospital, Wandsworth Common, S.W. 17.—Asst. M.O. £400.
Staffordshire General Infirmary, Stafford.—H.S. £200.
Sunderland, Durham County and Sunderland Eye Infirmary.—Locum S.
Virginia Water, Surrey, Holloway Sanatorium.—Jun. Asst. M.O. £400.
Warrington Infirmary and Dispensary.—Jun. H.S. £200.
West Bromwich and District Hospital.—Res. Asst. H.S. £180.
York County Hospital.—Third Res. O. £150.

The Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at South Glasgow.

Births, Marriages, and Deaths.

BIRTHS.

ADDEY.—On July 19th, at Lower Brook-street, Ipswich, the wife of Dr. W. F. Addey, of a daughter.

BLACK.—On July 11th, at Carden-terrace, Aberdeen, the wife of Dr. G. McLean Black, Tomintoul, of a daughter.

COHEN.—On July 16th, at Dorset-gardens, Brighton, the wife of C. B. Cohen, M.B., of a daughter.

ROY.—On July 17th, at Chandos-street, Cavendish-square, W. 1, the wife of Donald Roy, M.B., B.Ch., F.R.C.S. Eng., of a son.

SIDEBOTHAM.—On July 21st, at Raleigh House, Ottery St. Mary, Devon, the wife of Dr. F. N. Sidebotham, of a son.

WOODHOUSE.—On July 13th, at Windlestone, Bray, Berks, the wife of S. C. Woodhouse, M.B., M.R.C.S., of a son.

MARRIAGES.

CLEVELAND—SWINHOE.—On July 19th, at St. Andrew's, Holborn, Colonel Henry Francis Cleveland, C.I.E., I.M.S., to Kathleen Rodway, elder daughter of Mr. G. Rodway Swinhoe and Mrs. Swinhoe, of Swindon, and Mecklenburgh-square.

GRAINGER STEWART—PLAYFAIR.—On July 20th, at St. Margaret's, Westminster, Thomas Grainger Stewart, M.D., F.R.C.P., to Lady Playfair, widow of Sir Patrick Playfair, C.I.E.

NEWMAN—CLÉMENT.—On July 8th, at the Parish Church, Whitstable, Major Richard Ernest Upton Newman, R.A.M.C., to Lucie Martha, third daughter of M. and Mme. Paul Edouard Clément, of Geneva, Switzerland.

POWELL—DOONER.—On July 15th, at St. Michael's, Chester-square, Lieut.-Colonel Eyre Powell, R.A.M.C., to Mrs. Graham Dooner, widow of Lieut.-Colonel Graham Dooner, D.S.O., R.F.A.

DEATHS.

HART.—On July 22nd, suddenly, at Bournemouth, Richard Neville Hart, M.A., M.D. Camb., aged 45 years.

VINCENT.—On July 21st, at Seymour-street, Ralph Vincent, M.D.

YOUNG.—On July 13th, at Bedford, Colonel James Young, I.M.S., retired, aged 76 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

PREVENTIVE ASPECTS OF ENDEMICS IN MODERN TIMES.*

BY W. J. R. SIMPSON, C.M.G., M.D. ABERD., F.R.C.P. LOND.,
PROFESSOR OF HYGIENE AND PUBLIC HEALTH, KING'S COLLEGE, UNIVERSITY OF LONDON.

As science advances theories change, and so it is that the theories of to-day regarding endemic and epidemic disease are not exactly the same as they were in the early part of last century. Malaria, for instance, is no longer viewed as caused by emanations from marshes, nor yellow fever as spread by fomites on clothes and bedding, nor are plague and cholera now attributed to earth-born and air-borne agencies. That malaria was connected with marshes and plague associated with sick rats were facts which had been observed over and over again throughout the centuries. To account for these occurrences the theory of gaseous emanations from different sources was constructed. In the case of plague, the contagionists disputed this explanation of causation on the ground of its being carried from place to place by sick persons or by the clothes of the sick or by goods from an infected place. They were unable to establish the proof of their contention owing to the imperfection of the microscopes of the day. The discovery of bacteria and protozoa as causal agents of communicable diseases has altered our outlook and given us a wider vision. The agents which had been suspected were made visible and could be traced sometimes in or on insects, sometimes in or on animals, and sometimes in both, often on food and in drink and on various objects. Laboratory research and the differentiation between the life-history and mode of reproduction of bacteria and protozoa cleared up many obscurities attaching to infection and revealed new avenues for exploration. The mosquito proved to be the link between malarial man and the marshes, the plague bacillus and flea between the sick rat and man infected with bubonic plague.

The soil might nurture some of the micro-organisms under certain conditions, but the vehicles by which they spread were evidently not gaseous emanations nor the winds. No time-honoured theory is demolished at once by any discovery. It takes a considerable time. The earth-born and air-borne theory of cholera causation survived long after overwhelming evidence, collected in England, Egypt, and India, that the disease was mainly spread by infected water. As late as 1886 the Sanitary Commissioner with the Government of India held the old view. At that period when there was an outbreak of cholera among soldiers the camp was evacuated and men marched away from the prevailing wind in order to avoid the air-borne germs. The invariable success of the measure curiously tended to confirm the old view, as the men were by this procedure removed from the infected camp, and it was only when the cholera bacillus was found in water, milk, latrines, and on flies in different places where outbreaks occurred that attention was specially directed to the removal of these conditions and the air-borne theory discarded.

The Application to Communities of Recent Discoveries.

When applied to communities the value and utility of the discoveries of Pasteur, Lister, Koch, Laveran, Roux, Calmette, Kitasato, Manson, Ross, Grassi, Bignami, Reed, Carrol, Lazear, Flexner, Castellani, Bruce, Haffkine, Wright, and a host of others in the latter half of the nineteenth century have been conspicuously great, and are likely to be greater in future, especially in the tropics; the monumental work accomplished by Gorgas and his staff in Havana and Panama, the improvement of the health conditions of the West Coast of Africa, the reduction of the death-rate of the British Army in India to 4 per 1000 per annum, and the excellent control of plague, cholera, enteric fever, and typhus during the war are but a few examples of the work done. Each of these successes in the tropics and sub-tropics has been effected by a trained health service applying the knowledge that had been acquired by research.

But great as these achievements are, they are only a continuation in tropical lands of equally great successes in England obtained by the early pioneers in preventive medicine who had never seen the causal agents but had only suspected them. The Navy led the way both in investigations and in the application of the knowledge derived from them. In 1757 Dr. James Lind, a naval surgeon, published the means by which the ship could be kept free of infection and disease, and the sailors healthy, and whereby scurvy could be cured and prevented. He himself devised a distilling apparatus to purify the water on board, and was with Dr. Brocklesby, an Army surgeon, an advocate of open-air hospitals.

His views slowly gained attention, proved successful in individual ships, and under the direction of Dr. G. Blane, first as physician to the Fleet in the West Indies, and later as Medical Director-General of the Navy, were effectively applied in an organised and systematic manner in every ship with excellent results.

Gorgas's work made it possible to cut a trade route through an area notorious for its yellow fever and malaria, and at the same time demonstrated the practicability of making the tropics healthy and fit for the white man to live in. Blane's work consisted in helping to save a nation at a most critical period of its existence; while Jenner's substitution of vaccination for inoculation against small-pox in the eighteenth century has subsequently conferred a world-wide benefit. It was also the forerunner of all the protective inoculations that are practised by the medical profession at the present day. Later the same methods of inquiry into disease and subsequent application of the knowledge acquired were adopted for the towns of England, and it is due to this practice that the evil-effects of the insanitary conditions brought about by the birth of the industrial period with its crowding into towns were mitigated, and that England later succeeded by its health organisation and health reforms in the Victorian era in reducing the death-rate from all causes. Owing to this two-fold policy England became a leader in sanitary science and health administration, and it might have been a leader in town planning had Sir Christopher Wren's original plans, after the Great Fire of London, been accepted.

The Relationship of Animal Disease to Man.

A relationship between the diseases of animals and man, long suspected, has been established for certain bacterial diseases, and has been shown to be probable for trypanosomiasis. More research is needed, not only in the direction of ascertaining the relationship of animal disease to man, but also of plant diseases to those of animals and man. My investigations in India led me to the conclusion that small-pox and some of the diseases of animals that pass under the name of rinderpest are intimately connected, that cholera was not infrequently associated with diarrhœal disease of calves, and that other epidemic and endemic diseases than plague were spread by rats. Investigations pursued, especially in those countries where domestic animals and man are living together in the same dwelling, and the grain is subject to disease, may help us to forestall and prevent the endemicity of leprosy, small-pox, measles, and other diseases, and to understand the causes of periodicity, of reduction and exaltation of virulence, of the rise and progress of epidemics and pandemics and their retrogression.

It is in the tropics that endemics due to bacteria, unlike those caused by protozoa, threaten periodically to become epidemic, and owing to rapidity of travel and changed conditions of commerce threaten other parts of the world. The International Boards in Egypt and Constantinople have not been able by their quarantine measures to prevent plague passing their frontiers to other lands, though they have been useful in preventing mass infection; nor can they be of any use in preventing importation from the West, as happened when plague was brought by ships from South America to Capetown and to England. Plague has been reported this year not only in countries east of Suez, but also in Egypt, Northern Africa, Russia, Greece, Palestine, the Azores, Mexico, Brazil, and Peru. Thirty years ago it was thought to be dying out, but during the last quarter of a century it has re-established itself on every continent and is a potential menace to the world. Since its importation into Bombay from China in 1896 it has destroyed in India some 12 million lives, and still continues. Recently there were 8000 deaths from plague in Uganda, which is an old endemic centre.

The Practical Aspect.

Turning to the practical aspect of these questions, it is necessary to separate what is known from what is unknown. It is the application of our present knowledge that is badly needed in the tropics, and it is there also we can best solve the problems connected with endemics and epidemics, whether in man or animals. Ankylostomiasis, bilharziasis, elephantiasis, and leprosy are common scourges, while plague, cerebro-spinal fever, cholera, small-pox, and sleeping sickness are continually taking their toll of lives in some part of the tropics.

There is urgent need to devise better means than exists at present to save the population in the tropics from preventable disease. My experience in the tropics is that notwithstanding the valuable and splendid work that has been

* Abridged from a paper read at the Third International Congress of the History of Medicine, held on July 17th to 22nd in London.

accomplished by sanitary commissioners, sanitary and medical officers, most of whom have been trained in the schools of tropical medicine, no health administration is complete or able to deal effectively and satisfactorily with the endemic diseases of the tropics and with the conditions that favour their prevalence, until its organisation is conceived on a wider basis than at present. That wider basis is only economically to be obtained by adding to that which now exists a trained staff from the indigenous population. For that purpose medical and engineering colleges are needed in the countries concerned to supply an auxiliary medical, sanitary, and veterinary service.

Conclusion.

In conclusion I would urge :—

1. That there is sufficient known of the ordinary diseases in the tropics and their mode of prevention to justify the creation of a special sanitary service in each of the colonies by the nations to whom they belong, in order to prevent and abolish these diseases.

2. That such a sanitary service is imperatively needed owing to the great wastage from preventable disease in the tropics and is urgent because of the small population in each country and the necessity of preserving it.

3. That such a service can only be thoroughly effective when it is composed of a native agency fully trained and well supervised by highly trained experts.

4. That the organisation should include arrangements for (*a*) investigation and ordinary routine laboratory work, and for (*b*) research in the laboratory and the field on the more obscure endemic diseases.

5. That to facilitate research and preventive measures it would be of much advantage for comparison to have regularly included in the valuable statistical data furnished by the Office International d'Hygiène Publique and the American Public Health Administration similar information concerning (*a*) the epizoötics in the countries concerned, such as plague, rinderpest, cattle plague, foot and mouth disease, anthrax, &c.; (*b*) the diseases affecting plants, grains, and crops; and (*c*) any extraordinary appearance of insects and vermin and of swarms of locusts, caterpillars, &c. All these, with the localities in which they occur, should be chronicled with the epidemics of man.

6. That an effort should be made to map out the more permanent endemic localities of influenza, small-pox, plague, cerebro-spinal disease, trypanosomiasis, and leprosy on similar lines to those employed by the Rockefeller foundation in regard to yellow fever, and that these should be studied from every known point of view by special commissions, financed by voluntary associations.

We have founded a Tropical Disease Prevention Association in this country, and we hope later on, when we can get our rich men interested, to be friendly rivals to the Rockefeller foundation in their great work in endeavouring to solve some of the pressing health problems of the tropics. The spirit of exploration, discovery, and enterprise pervades the British to-day as strongly as in the past. There are expeditions financed by the wealthy to the Antarctic to find out what is there, to Mount Everest to scale its heights, to the tropics in the search for orchids, oil, gold, tin, and other treasures. Why not expeditions to solve the great problems in their permanent home of these disabling and destructive diseases? I am sure, once the vast importance and economic value of such investigations are understood, a sufficiency of money will be raised to enable the association to carry out its aims.

INDIAN OFFICIAL MEDICAL REPORTS.

II.—SANITATION IN THE UNITED PROVINCES.[1]

THE facts detailed below, concerning the state of health in the United Provinces for the year 1920, are embodied in seven detailed reports, now issued and dated. According to the latest revised statistics the population of these provinces is reckoned as 46,805,913, and on this basis the returns have been calculated. Major C. L. Dunn, I.M.S., Sanitary Commissioner, admits, however, that the reporting agency—that is, in country districts the "almost invariably illiterate chaukidar"—is very unsatisfactory in regard to diagnosis of causation of death. The birth- and death-rates in 1920 were 35·55 and 37·23 per 1000 respectively, the latter being higher than in any other province except the Central Provinces, where it was 40·11. The infantile mortality ratio (220·25 per 1000 births) was also only exceeded by that of the Central Provinces (255·75). The birth-rate, which was considerably lower than the quinquennial average of 40·98, varied from 22·65 in Naini Tal district and 22·89 in Dehra Dun, to 42·81 in Moradabad and 42·94 in Shahjahanpur. The death-rate (37·23) was lower than that of the previous year (41·69) and that of the quinquennium (44·30). In the various districts it ranged from 25·10 in Jaunpur and 26·78 in Gorakhpur to 56·43 in Bijnor and 56·55 in Bareilly. The ratios for males and females were 37·37 and 37·08 respectively, as compared with 44·24 and 44·37 in the quinquennium. There was some reduction in the infantile mortality, for which the ratio was 220·2 per 1000 births, compared with 232·3 in 1911–20, and 255·0 in 1901–10; but with a total number of deaths under one year amounting to 366,537 the Sanitary Commissioner is justified in his opinion that it is deplorable that such a high infantile mortality should continue from year to year. But no diminution can be expected until much educative work has been done among the mass of the people. The infantile deaths from "tetanus" increased from 77,564 in 1919 to 83,426 in 1920, but there is some doubt as to the correctness of the diagnosis in many cases. Everything practicable appears to have been done to reduce this high mortality: training of *dais* (native midwives), employment of health visitors, lectures to mothers, distribution of pamphlets of instructions, by-laws for control of milk shops, free quinine, and maintenance of coöperative dairies in the large cities of Benares, Lucknow, and Allahabad—all these measures were carried out. The infantile mortality ranged from 141·11 in Gorakhpur district to 303·67 in that of Cawnpore; in the city of Cawnpore it was 551·07, and in the town of Jalesar, a few miles N.E. of Agra, it was 614·32. These mortalities are appalling, but can be understood in small towns populated mostly by illiterates, but in Cawnpore that such a high infantile mortality should go on from year to year is most regrettable. No material change has taken place in the development of sanitary works.

Diseases and Injuries.

An immense decrease in the cholera prevalence was notified. The deaths numbered 6952, as compared with 81,365 in 1919, the respective ratios being 0·15 and 1·74 per 1000; but we are warned that the mortality for 1920 is probably much under the real figures. Of the total 6952 deaths recorded, 5009 occurred in August, September, and October. The highest ratios were experienced in Kheri district of Lucknow division, where the mortality was 1·13, and in Bareilly (1·02 per 1000); only 3 deaths from this cause were registered throughout the districts of Muzaffarnagar and Bulandshahr (Meerut division), 1 only in Sultanpur, and none at all in the district of Jhansi. The "cholera scheme" continued in operation in the 12 districts of Oude and in eight in Benares and Gorakhpur divisions. The use of permanganate of potash was resumed instead of bleaching powder, which had been substituted during the war period. It is stated that 3694 deaths from cholera were recorded in the 20 districts under the scheme, as compared with 3528 in the 28 districts not under the scheme. As the respective populations concerned are not stated, these figures give no idea of the relative ratios.

Small-pox was less fatal than in 1919 (0·13 deaths per 1000 compared with 0·23), but still above the quinquennial average (0·08). At Azamgarh the death-rate was 4·50 per 1000; and, on the other hand, 31 towns did not return a single death from this disease. There was some increase in plague, which caused 24,872 deaths (0·53 per 1000), compared with 0·37 in the previous year, and 1·83 for the quinquennium. The deaths rose from 2796 in January to 7769 in March, falling to 26 in July; a rise then followed to 1796 deaths in December. The heaviest mortality was registered in Ballia district of Benares division (7·31 per 1000); but the whole of the Meerut, Agra, and Kumaon divisions were free from the disease. Evacuation was carried out in most of the infected districts, and "continued to be a popular measure."

Under the heading of Injuries it is noted that 2705 deaths occurred from suicide, compared with 2595 in 1919; 757 were males and 1948 females. The ratios per 1000 work out at 0·031 and 0·087 respectively—that is, suicide occurs almost three times as often in women as in men in these provinces. A considerable increase was registered in deaths from rabies, which numbered 453, as compared with 301 in the previous year and 227 in 1918; 140 of these deaths were reported from Shahjahanpur rural district.

Hospitals and Dispensaries.[2]

At the end of 1920 there were 661 civil hospitals and dispensaries at work in the United Provinces, showing an increase of 14 on the year preceding; the total number of patients treated amounted to 5,788,931, as compared with 5,380,877 in 1919. "This increase is almost entirely accounted for by the larger number of cases of malaria." The indoor patients totalled 85,422, the daily average being 3378; of these 48,437 were cured, 19,858 relieved, and 3726 (4·38 per cent.) died, the remainder being "discharged otherwise." The chief diseases treated were affections of the eye (11,448 with 8 deaths), malaria, 7221 (121 deaths), dysentery, 1949 (231 deaths), ulcers, 2940 (86 deaths), syphilis, 1945 (34 deaths), nervous affections, 1570 (70 deaths) pneumonia, 1509 (440 deaths), pulmonary tuberculosis,

[1] Report of the Sanitary Commissioner. Allahabad Government Press. 1921.

[2] Annual Report by Colonel J. K. Close, M.D., I.M.S. 1921.

1355 (241 deaths), tuberculosis (non-pulmonary) 1301 (64 deaths), and rheumatism, 1201, with only 7 deaths. There were also 11,593 cases of injury with 505 deaths. Of the 5,703,509 outdoor patients malaria accounted for 1,256,323; the next most frequent diseases being those of the eye (574,291), rheumatic fever and rheumatism (146,463), injuries (140,116), and poisoning (11,562, of which 126 were by opium). It is to be noted that only 7 deaths from rheumatism and 60 from circulatory diseases of all kinds occurred among the 85,422 indoor patients treated. The deaths among out-patients are not stated; but in the return of indoor cases treated in the State, special, and railway dispensaries, 424 cases of "rheumatic fever and rheumatism" are tabulated, without a single death; and of 61 cases of circulatory diseases not one was fatal. Further, among 407,834 patients treated at "private non-aided" dispensaries, out of 9990 cases of "rheumatic fever and rheumatism" only 2 were fatal, and only 5 deaths occurred among the 3788 patients suffering from diseases of the circulatory system.

Health of the Jail Population.[3]

The jails in the United Provinces contained 25,773 prisoners of all classes at the beginning of the year 1920, and received 77,593 additional inmates during the year. The discharges numbered 77,979, and the daily average present was 24,808. In the previous year the daily average jail population had been 31,206. The admissions to hospital (586·6 per 1000) and the daily average sick (22·6) were in higher ratios than in 1919 (509·5 and 20·8), but the death-rate (17·0) was considerably less than in 1919 (24·4), and in 1918 (46·0) when influenza was prevalent; it was, however, higher than the seven-year average (1911–17), which was 12·8. Nearly half of the jail population—viz., 10,893 (all being convicted prisoners except eight)—were confined in the six central prisons, each accommodating over 1000 inmates. The ratio of admission to hospital in these large institutions (495·8 per 1000) was lower than in any other class of prison, except the fifth class (small jails of varying capacity) in which the ratio was 454·2. The deaths in the central prisons (15·5 per 1000) were also lower than in any other category, except the first class (accommodating 500 to 1000), in which the ratio was 14·2; and the constantly sick ratio (22·0) was lower than in any other group except the first and the fifth class, where the ratios were 19·1 and 13·8 respectively. No higher testimony could be given to the excellence of the sanitary administration of these large institutions, the inmates of which are, no doubt, much better cared for, in most cases, than in their own homes. (The general death-rate for the male population in the United Provinces in 1920 was 17·79 between 20 and 30 years of age, 22·36 between 30 and 40, and 29·09 between 40 and 50.) Only 1 case of cholera (at Ballia) occurred among the 103,366 persons of both sexes that passed through the jails during 1920. Malaria caused 223·6 admissions to hospital per 1000, but the death-rate was only 0·9. At Agra there were 677 admissions and 7 deaths (322·0 and 3·3 per 1000), and at Cawnpore the admission ratio was 836·3, but with no deaths. For dysentery the admission ratio was 26·8 and the mortality 1·9; it was prevalent at Banda and at Mirzapur, where the admissions were 185·5 and 123·3, with corresponding death-rates of 10·3 and 19·4. Pneumonia caused 14·1 admissions per 1000 and a death-rate of 2·8. The disease causing highest mortality was tuberculosis; there were 258 admissions and 64 deaths, 243 and 58 of which were due to the pulmonary affection. During the year the Sultanpur jail was adapted for tuberculosis cases from other jails in the province, special wards being constructed for the accommodation of 140 such patients. Lastly, it may be noted that, of the 38,568 prisoners discharged during the year, 63·98 per cent. had gained, and only 10·31 per cent. had lost weight; also that 1293 prisoners under one year's sentence were given special remission of sentence for good work.

[3] Annual Report by Lieut.-Colonel J. M. Woolley, M.D., I.M.S. 1921.

JENNER RELICS.

AN interesting collection of Jenner relics came under the hammer at Messrs. Sotheby, Wilkinson and Hodge's on July 26th. The relics were the property of Mr. E. J. Briggs, 107, Upper Richmond-road, Putney, S.W., and comprised prescriptions and autograph letters, pamphlets dealing with inoculation, portraits and sketches, and a lock of Jenner's rich, dark-brown hair. Among the autograph letters, 72 in number, and bearing dates between 1808 and 1822, was one in which Jenner, writing from Berkeley, Gloucestershire, to Thomas Pruen of Cheltenham, says: "The *Medical Observer* came out as usual the first of the month" (presumably September, 1808). "It is so crammed with anti-vaccine rubbish that one would think that it must soon sink under its own weight. Birch gives a print of it, exhibiting four Heads *diseased by vaccination*; he might have added his own and made a fifth, and tho' I *know* from good information that my person is not in safety here, yet I do not feel the least dread of assassination." Among the pamphlets from Jenner's hand was one on the Origin of Vaccine Inoculation (1801), 8 pp., an autographed presentation copy from the author to Mr. Pruen and another on the Influence of Artificial Eruptions (1822), 67 pp., in the form of a letter to Charles Henry Parry, M.D. A parcel of miscellaneous papers and pamphlets included a propaganda leaflet which suggests that we have not made much advance in methods of educating the public with regard to medical matters. The pamphlet, which was drawn up by John Addington, and published by order of the Medical Council of the Royal Jennerian Society for the extermination of small-pox, sets out in a comparative view the effects of natural small-pox, inoculated small-pox, and inoculated cow-pox, with a list of stations where inoculation can be received by the public. At the foot of the front page is the following legend: "You are requested to affix this useful publication in a conspicuous part of your dwelling." The collection included a small portrait in oils of Jenner himself.

THE MALARIA MOSQUITO.

To the Editor of THE LANCET.

SIR,—With reference to the verses on the above-named subject which appeared in your issue of to-day's date, I have just been informed by Dr. Norman Haire that they are part of a poem of 36 lines by "Laurence Hope" (Mrs. Violet Nicholson), and are to be found in "The Garden of Kama," p. 167 (Heinemann, 1912).—I am, Sir, yours faithfully,

P. HEHIR,
Major-General, I.M.S.

Westward Ho! North Devon, July 22nd, 1922.

ENDOLYTIC TUBES OF MICROSCOPIC STAIN.

To the Editor of THE LANCET.

SIR,—It will be readily admitted that the examination of a blood-film is often omitted because of the difficulty of carrying out the process of staining: the same difficulty, in a lesser degree, accrues to the preparation of films of pus, &c. This applies especially to a medical man in whose practice the necessity of such examination occurs at infrequent intervals. Solutions of stain, when kept in bottles, tend to deteriorate in the course of a year or two; the preparation of fresh stain from powder or tablets is a messy proceeding, and does not always produce in a short time a fluid clear from sediment. At my suggestion, Messrs. Fletcher, Fletcher, and Co., whose endolytic tubes for the bedside testing of urine are so well known, have prepared tubes containing microscopic staining fluids, ready for immediate use. Each tube contains sufficient for the staining of one film. Being hermetically sealed, the fluid keeps indefinitely and is obtained for use immediately by simply breaking off the ends of each tube. They have put up for me in this form Leishman's stain, methylene-blue, and carbol-fuchsin, and they are prepared to put up other stains if a reasonable number of tubes be ordered.

I am, Sir, yours faithfully,

J. C. MATTHEWS, M.D., M.R.C.P.

Liverpool, July 10th, 1922.

ENTERIC FEVER FOLLOWING COCKLES.

THE necessity of a vigilant watch being kept on trading with shell-fish in our harbours was emphasised at Shoreham Petty Sessions on July 17th, when John Laker was summoned for selling, through an agent, for human consumption, cockles taken from Shoreham harbour. The man's story was that being out of work he gathered the cockles and a family of four ate some with no apparent ill-effects. The next day the remainder of the cockles were sold by a young member of the family, and a man who partook of them died of typhoid. It was pointed out by the prosecuting authority, the Shoreham Port Sanitary Authority, that an Order dated 1915 forbids the taking of cockles from certain parts of the river, and empowers the justices to impose a fine of £100 for any infringement thereof. The defendant was bound over for 12 months.

Industrial Spirit is released by the Board of Customs and Excise (London, E.C. 3) by "special permit" for manufacturing purposes and such other purposes in infirmaries and hospitals as the Board sees fit. To obtain a permit it is necessary to state the quantity likely to be used per annum, the purposes to which it will be put, and to give a bond of some hundreds of pounds that the spirit will not be used for other than the purposes stated. Records must be kept open for inspection at any time by the Excise officer and a yearly statement made as to the disposal of the quantity ordered. Permits are not supplied to private individuals in view of the difficulty of control and inspection.